
IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all motor vehicles. The service procedures recommended by Fisher Body and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various Warnings, Cautions and Notes which should be carefully read in order to minimize the risk of personal injury to service personnel or the possibility that improper service methods will be followed which may damage the vehicle or render it unsafe. It is also important to understand that these Warnings, Cautions and Notes are not exhaustive. Fisher Body could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Fisher Body has not undertaken any such broad evaluation. Accordingly, anyone who uses a service procedure or tool which is not recommended by Fisher Body must first satisfy himself thoroughly that neither his safety nor vehicle safety will be jeopardized by the service method he selects.

1976 SEVILLE FISHER BODY SERVICE MANUAL

This publication contains the essential removal, installation, adjustment and maintenance procedures for servicing the 1976 Seville "K" Fisher Body Style. All information, illustrations, and specifications contained in this publication are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

Arrangement of the material is shown by the table of contents on the right-hand side of this page. Black tabs on the first page of each section can be seen on the edge of the book below section title. A more detailed table of contents precedes each section.

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SECTION 1

GENERAL INFORMATION

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MANUAL DESCRIPTION**INTRODUCTION**

This publication contains essential removal, installation, adjustment and maintenance procedures for servicing the 1976 Fisher "K" Body. This information is current as of time of publication approval.

INDEX

The preceding page contains a "Table of Contents" which lists the section number and subject title of each main body area section. The first page in each main body area section has an index to the subjects included in that section.

PAGE AND FIGURE NUMBERS

All page numbers and figure numbers consist of two

sets of digits separated by a dash. The digits preceding dash identify main body area section. Digits following dash represent consecutive page number or figure number within the particular body area section.

REFERENCE TABS

The first page of each section is marked with a ready reference black tab corresponding with table of contents page.

ILLUSTRATIONS

Where possible, illustrations are placed in close proximity to accompanying text and should be used as part of the text.

MODEL IDENTIFICATION CHART

Division	Sales Name	Body Type	Series	Style
Cadillac	Seville	K	6KS	69

BODY SERIES NUMBER

The body series number identifies the following:

1. First Position - Division (ex. 6, Cadillac).
2. Second Position - Body Type (ex. 6K, Cadillac "K" Body).
3. Third Position - Division Series (ex. 6KS, Cadillac "K" Body Seville).
4. The last two digits of the body series number indicate body style (ex. 69 - Notch Back - Pillar (4 Window) Sedan).

BODY NUMBER PLATE

The body number plate identifies the model year, style, body assembly plant, body number, trim combination, modular seat code, paint code and date build code (Fig. 1-1). Plate is located on the front facing of the upper shroud.

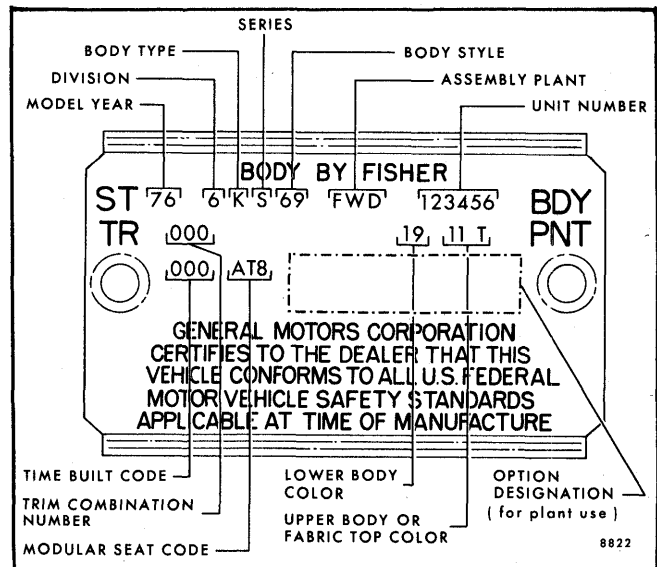


Fig. 1-1-Body Number Plate

VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (serial number) is located on left front horizontal surface of instrument panel which is visible from outside the car.

LOCK CYLINDER CODING

FIVE BITTING LEVEL LOCK CYLINDER AND KEY

Two non-interchangeable keys are used on the "K" body. One key, known as type "A" is identified by a square head, and the letter "A" stamped on the shank and is used in the ignition lock cylinder.

The second key, known as type "B" is identified by a round head, and the letter "B" stamped on the

shank and is used in front doors, instrument panel compartment and rear compartment. Specific key identification is obtained from the four character key code stamped on the knock-out portion of the key head. On type "A" keys, codes range from 00V0 to 99V9 and 00W0 to 99W9. On type "B" keys, codes range from 00X0 to 99X9 and 00Y0 to 99Y9. This number identifies the lock combination and is used when ordering or making new keys. The "A" ignition key will not fit the front door lock cylinder and the "B" key will not fit the ignition lock cylinder.

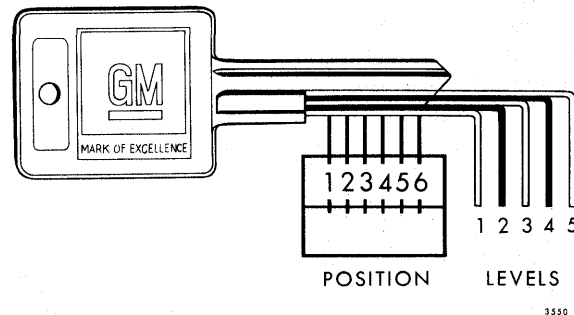


Fig. 1-2-Key Code Diagram

After code number has been recorded by owner, plugs should be knocked out of key head. From these numbers, lock combination can be determined by use of a code list (available to owners of key cutting equipment from equipment suppliers). If key code numbers are not available from records or from "k-nock-out" plug, lock combination (tumbler numbers and position arrangement) can be determined by laying key on diagram in Figure 1-2.

CUTTING KEYS

After the special code has been determined, either from code list or Key Code Diagram (Fig. 1-2) cut blank key to the proper level for each of six tumbler positions, and check key in lock cylinder. The new key should agree with combination opposite code number in code list.

REPLACEMENT LOCK CYLINDERS

New lock cylinders are available from Service Parts Warehouses with new lock cylinder locking bar staked in place. Tumblers are also available and must

be assembled into cylinder according to procedure outlined below.

ASSEMBLING AND CODING LOCK CYLINDERS

All Lock Cylinders Except Glove Compartment

Tumblers for all locks except glove compartments are shaped exactly alike, with the exception of notch position on one side. As the key is inserted in lock cylinder, tumblers are raised to correct height so that notches on each tumbler are at same level. When the notches on all six tumblers line up, locking bar is pushed into the notches by two small springs, allowing cylinder to turn in its bore. Five types of tumblers are used to make all various lock tumbler combinations and each is coded according to a number, 1 through 5, stamped on its side.

1. Determine lock cylinder tumbler numbers and tumbler arrangement by use of numerical key code lock cylinder code list. Code lists are made available to owners of key cutting equipment by equipment suppliers.

NOTE: To determine which tumblers should be installed in what position for a given key, when a code list is not available, proceed as follows:

- a. Lay key on Key Code Diagram (Fig. 1-2) with key outlined by diagram as accurately as possible.
 - b. Starting at head of key blade, determine and record lowest level (tumbler number) that is visible in position number 1 and subsequent position numbers 2 through 6. After tumbler numbers and arrangement have been determined, assemble as outlined in following steps.
2. Starting at open end (head) of cylinder, insert tumblers in their proper slots in the order called for by the code, as shown in Figure 1-3.
 3. Pull out side bar with fingers so that tumblers will drop completely into place (Fig. 1-3). Insert one tumbler spring in space provided above each tumbler.
- CAUTION:** *If the springs become tangled, do not pull them apart - unscrew them.*
4. Insert spring retainer so that two end prongs slide into the slots at either end of cylinder. Press retainer down (see Fig. 1-4).

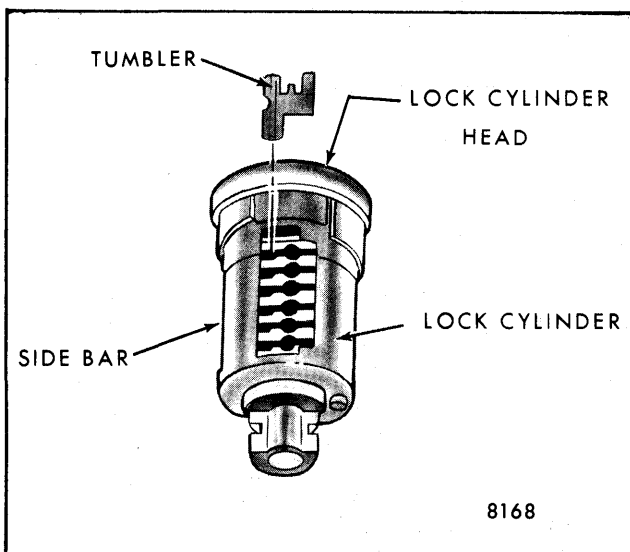


Fig. 1-3-Installing Tumblers

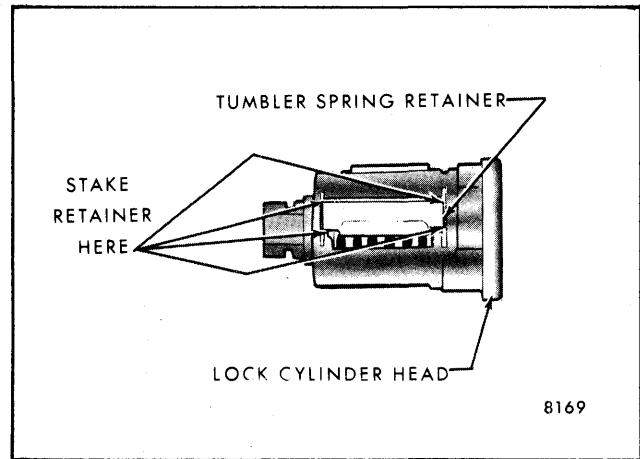


Fig. 1-4-Installing Spring Retainer

5. To determine if tumblers have been properly installed, insert key into lock cylinder. If tumblers are installed properly, side bar will drop down. If bar does not drop down, remove key, spring retainer, springs and tumblers and reassemble correctly.

CAUTION: *If tumblers have not been assembled correctly, they can be removed from cylinder by holding cylinder with tumbler slots down, pulling side bar out with fingers and jarring cylinder to shake tumblers out. This procedure is necessary because once tumblers have been pressed down into the cylinder they are held in their slots by side bar.*

6. If, after checking, it is found that lock cylinder is assembled properly, remove key and secure cylinder in a vise with spring retainer exposed.

CAUTION: *Use leather or wood at each vise jaw to prevent damage to cylinder.*

7. Using suitable staking tool, stake spring retainer securely in place by staking cylinder metal over retainer at each end. Refer to Figure 1-4.

ASSEMBLING AND CODING GLOVE COMPARTMENT LOCK CYLINDERS

The glove compartment locks utilize a lock cylinder with snap-in tumblers. Glove compartment lock cylinders have five positions and four tumblers. The number 1 position (closest to cylinder head) is a brass retainer "tumbler". The 2 through 5 positions are standard tumbler positions.

The snap-in type cylinder is used only for the glove

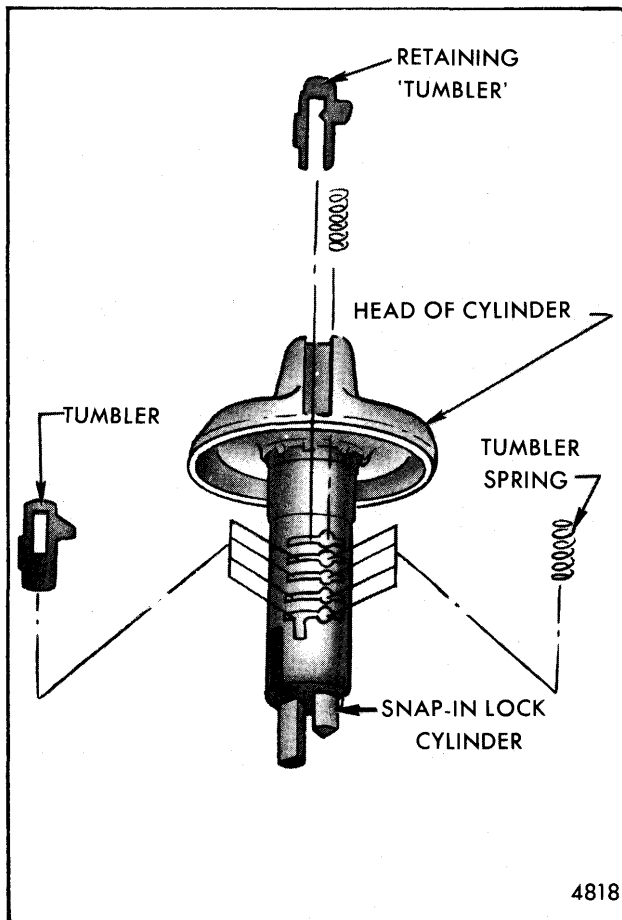


Fig. 1-5-Installing Tumblers

compartment. Therefore, lock cylinder components, including cylinders, tumblers, retainer "tumblers" and tumbler springs are not interchangeable for any other lock cylinder application. All individual components for servicing the snap-in cylinder are available separately from the Service Parts System.

1. Determine lock cylinder tumbler numbers and tumbler arrangement by use of numerical key code lock cylinder code list. Code lists are made available to owners of key cutting equipment by equipment suppliers.

NOTE: To determine which tumblers should be installed in what position for a given key, when a code list is not available, proceed as follows:

- a. Lay key on Key Code Diagram (Fig. 1-2) with key outlined by diagram as accurately as possible.
- b. Starting at head of key blade, determine and record lowest level (tumbler number) that is

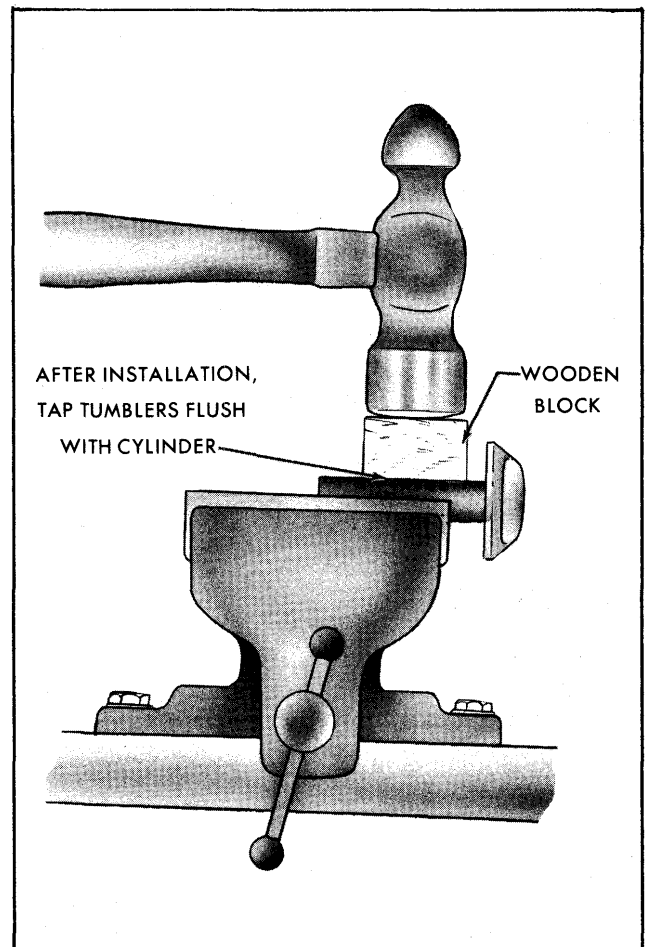


Fig. 1-6-Locking Tumblers In Place

visible in position number 1 and subsequent position numbers 2 through 5. After tumbler numbers and arrangement have been determined, assemble as outlined in following steps.

2. Starting at open end (head) of cylinder, insert tumbler spring and retainer "tumbler" in first position, then proceed to insert tumbler springs and tumblers in their proper slots in the order previously determined by code, as shown in Figure 1-5.
3. Place cylinder in vise, tumblers up, using leather or wood at each vise jaw to prevent damage to cylinder.
4. Place small wooden block flat on exposed tumblers and tap tumblers down flush with cylinder, as shown in Figure 1-6.

LUBRICATION

GENERAL MAINTENANCE

The mechanical parts of the body that have contacting surfaces which operate in relative motion with other body parts are lubricated during assembly. To maintain ease of operating effort, it is recommended that these parts be lubricated on a periodic basis with lubricants as follows:

All hinges (door and compartment lid), locks (door,

compartment lid and torque rods) are to be lubricated every six (6) months with Auto-Lube "A", Part No. 1050110, or Spray-Lube "A", Part No. 1050520 or equivalent.

The lubrication requirements for seat mechanism, door window hardware and windshield wipers are covered in the specific body area sections in this manual.

METAL REPLACEMENT PARTS FINISHING

INTRODUCTION

Metal service replacement parts (or assemblies) are painted with a black, high-bake factory primer. For proper adhesion of color coats in service, the following refinish steps are necessary.

Procedure

1. Wash part with paint finish cleaning solvent.
 2. Scuff sand panel lightly with No. 500 sandpaper, dry. Avoid cut-thru's. Rewash part.
 3. Apply best sealer available. Apply according to label directions.
 4. If necessary, apply primer-surfacer and sand smooth for required surface.
 5. Apply color coats as required.
1. Remove rust with suitable wire brush, abrasive or liquid rust removing agent. Follow directions.
 2. If necessary, wash with detergent, rinse and dry.
 3. Apply a heavy coating of Anti-Corrosion Compound (G.M.P.D. Part No. 1051685, 16 gal.; 1051686, 55 gal.; or 1052096, Aerosol or equivalents) to all cleaned hidden surfaces before installing exterior body parts. Also, apply Anti-Corrosion Compound or equivalent to entire inner surfaces of exterior body parts being installed.

SPECIAL BODY TOOLS

The following illustration (Fig. 1-7) lists special body tools that are recommended as aids in servicing the various body components. It is to be noted that these tools may be substituted with equivalents.

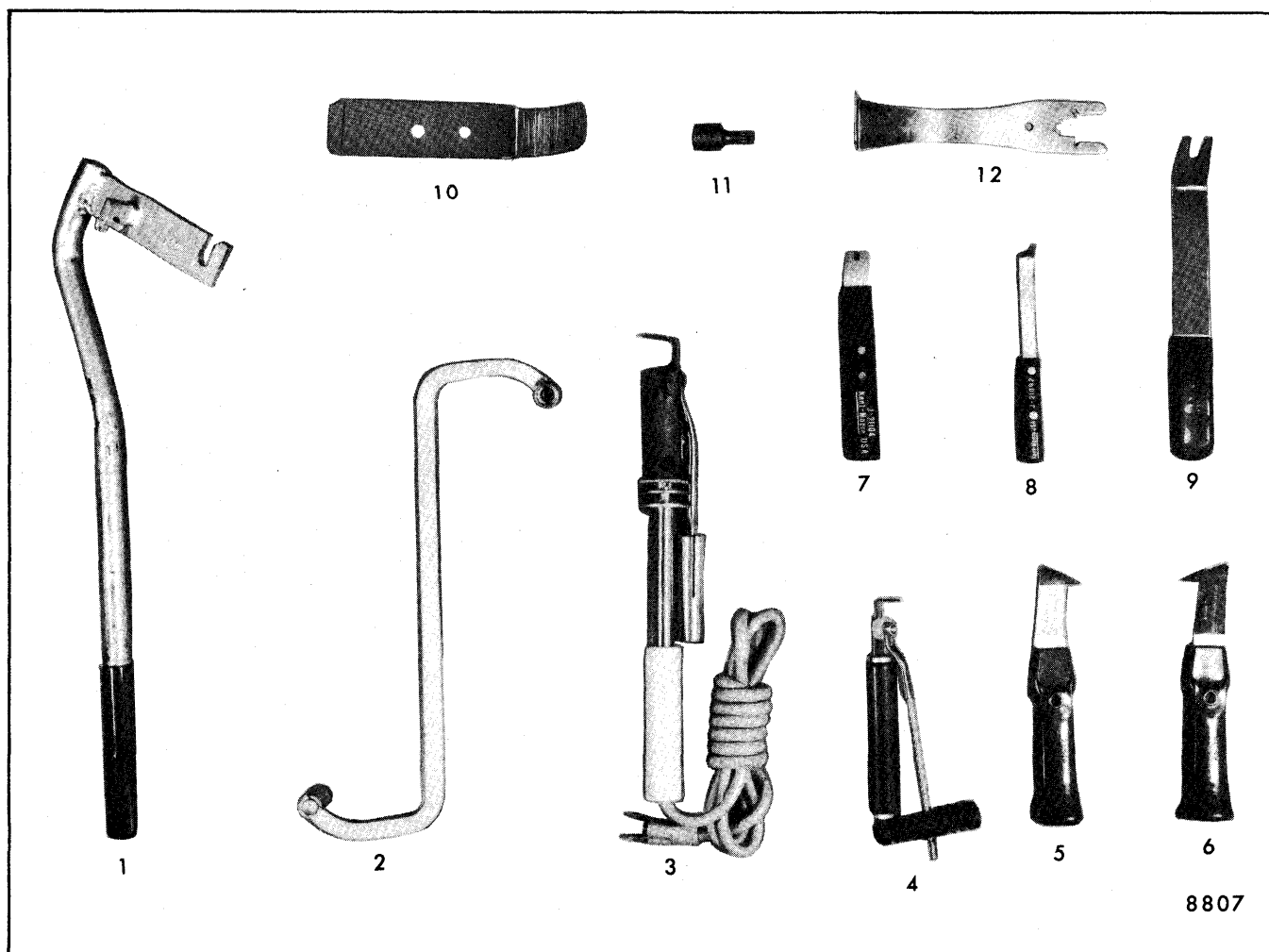


Fig. 1-7-Special Body Tools

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. J-25476 - Rear Compartment Lid Torque Rod Removal and Adjusting Tool 2. J-24353 - Door Hinge Wrench 3. J-24709-I - Stationary Glass Remover (750 Degree Hot Knife) 4. J-24402 - Stationary Glass Remover (Cold Knife) 5. J-21549-10 - Reveal Molding Remover (Left Hand Operation) 6. J-21549-11 - Reveal Molding Remover (Right Hand Operation) | <ol style="list-style-type: none"> 7. J-21104 - Weatherstrip Removing Tool 8. J-21092 - Fabric Roof Cover Trim Knife 9. J-24595 or BT-7323 - Trim Pad Remover 10. J-2772 - Headlining Installer 11. J-23457 - Seat Belt Anchor and Door Lock Striker Removing Tool 12. J-9886 - Door Handle Clip and Trim Pad Remover |
|--|---|

SECTION 2

WINDSHIELD WIPER SYSTEM

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MODIFIED PULSE WIPER SYSTEM

DESCRIPTION

The modified pulse wiper system provides a controlled wiping action. It utilizes a round motor and wiper blades that park below the hood line. The modified pulse motor and pump assembly can be identified from other systems by the dark gray pump cover and two (2) electrical leads coming out of the

motor grommet (Fig. 2-1). The crank arm used with the motor is identified by the letters "AL" stamped into the crank arm. Terminals and electrical leads are shown in Figure 2-2.

CAUTION: *Components of the modified pulse system cannot be interchanged with other wiper systems.*

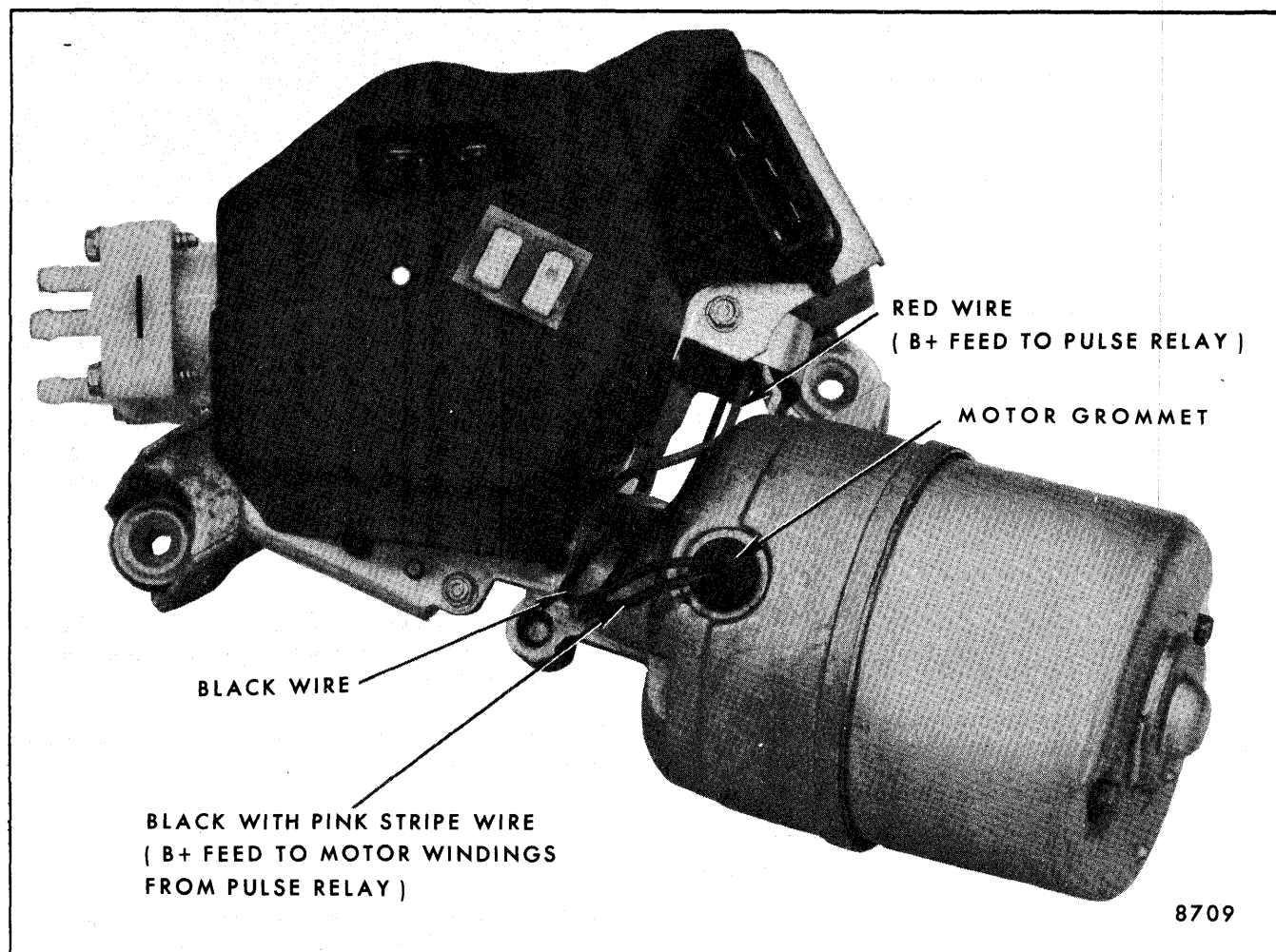


Fig. 2-1-Modified Pulse Wiper Motor and Pump Assembly

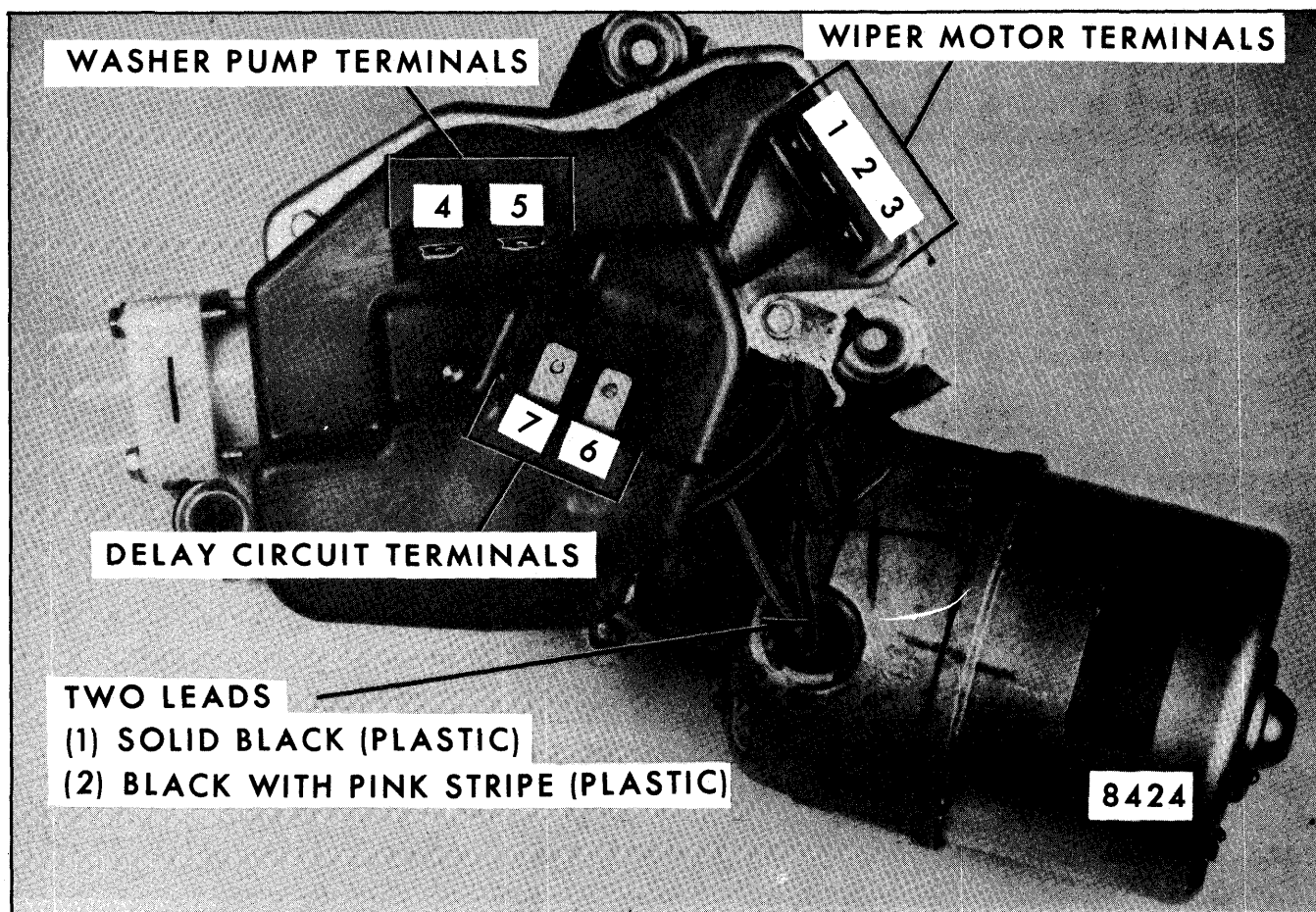


Fig. 2-2-Modified Pulse Wiper Terminals and Electrical Leads

Wiper speed (LO, MED and HIGH) as well as delay modes are controlled by an instrument panel mounted switch (Fig. 2-3).

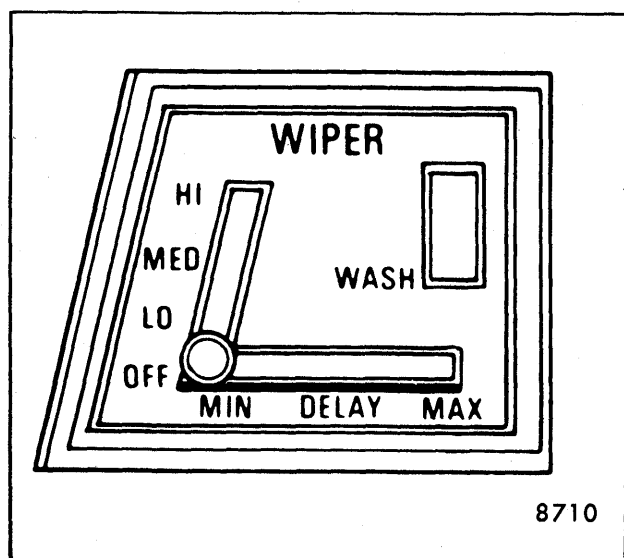


Fig. 2-3-Modified Pulse Wiper Dash Switch

When dash switch lever is in the "DELAY" mode, it can be moved from a "MIN" (minimum) to a "MAX" (maximum) position (Fig. 2-3). The movement of the lever from the MIN to MAX position varies the amount of time the wiper will delay between each wipe. The delay ranges between 0 and approximately 12 seconds depending on the position of the lever.

MOTOR OPERATION

NOTE: The dash switch is a combination of switches and a variable resistor controlled by a single lever and a wash button switch (Fig. 2-4).

Two relays control the starting and stopping of the pulse wiper motor.

1. Gearbox Relay
2. Pulse Relay

Both of the relays must function in order for the wiper motor to operate. Detailed explanation of each relay circuit follows.

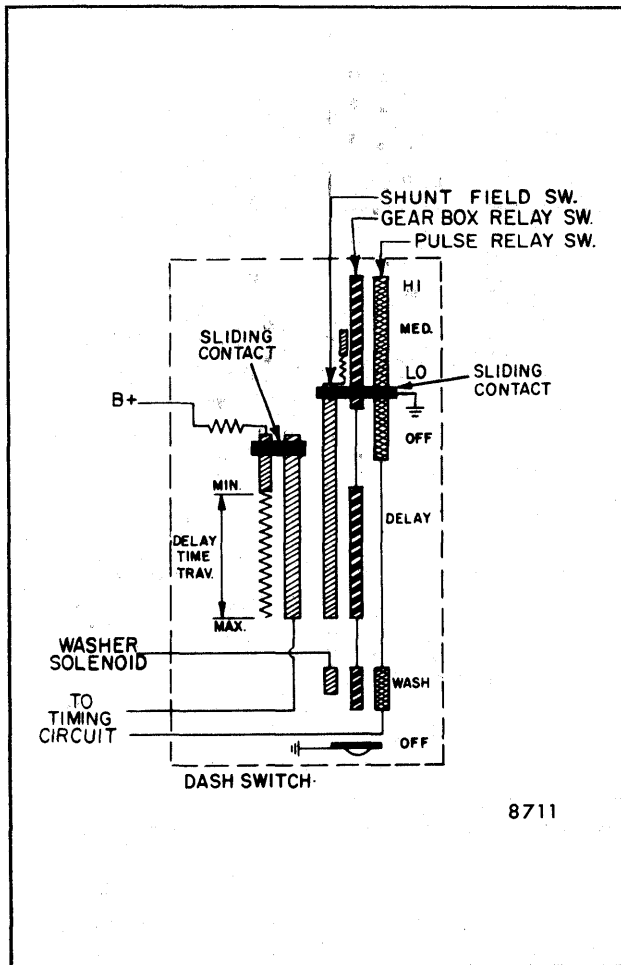


Fig. 2-4-Dash Switch Diagram

Gearbox Relay

The gearbox relay acts as a switch that turns the B plus supply to the pulse relay on and off.

Referring to Figure 2-5, note that the ignition switch completes the B plus circuit from the battery to one side of the relay coil and to one of the relay switch contacts. Turning the dash switch to the LO, MEDIUM, HI or DELAY positions completes the gearbox relay coil circuit to ground. This causes the gearbox relay switch contacts to close, completing the B plus circuit to the pulse relay. The pulse relay circuit is covered under "Pulse Relay".

Pulse Relay

The purpose of the pulse relay is to provide B plus supply to the motor windings. This is accomplished by the pulse relay switch contacts when the coil circuit is completed to ground by either the dash switch or the timing circuit, depending upon the position of the dash switch. Actually, the dash switch and the timing circuits are parallel paths to ground for the

pulse relay coil. Referring to Figure 2-5 note that the pulse relay coil circuit is completed to ground at the dash switch in the OFF, LO, MEDIUM and HI positions. Thus, whenever the dash switch is moved to LO, MEDIUM or HI, the gearbox and pulse relay circuits are completed almost simultaneously which, in turn, completes the motor circuit. The wiper motor then operates continuously in the speed selected by the dash switch position.

When the dash switch is moved to the "DELAY" mode, the pulse relay coil circuit is opened at the dash switch and the coil circuit will then be completed by the timing circuit as explained under "Pulse Relay Coil Circuit via the Timing Device".

Pulse Relay Coil Circuit via the Timing Device

NOTE: B plus is completed to the pulse relay coil when the gearbox relay is energized.

Regardless of application, the timing circuit for the pulse relay functions the same.

The timing circuit consists of two diodes, capacitor, variable resistor, transistor and holding switch. The diodes, capacitor, transistor and holding switch are located on the washer pump. The variable resistor is part of the dash switch.

The timing circuit functions as follows: Voltage applied to the capacitor via the variable resistor in the dash switch charges the capacitor (Fig. 2-6). When the capacitor reaches a predetermined charge, the transistor completes the ground circuit for the pulse relay coil (Fig. 2-7). When the pulse relay coil circuit is completed to ground, pulse relay switch contacts close completing the B plus feed circuit to the motor.

The holding switch contacts are held open by a fin on the washer pump drive cam (Fig. 2-8). When the wiper starts to run, the fin is moved away from the holding switch permitting the contacts to close.

Closing the contacts accomplishes a dual function:

1. The capacitor is partially discharged in preparation for the next delay period. This also turns off the transistor.
2. A holding circuit to ground for the pulse relay coil is provided until the wiping stroke is completed.

The wiping stroke is completed and the wiper shuts off when the fin on the washer pump drive cam re-opens the holding switch contacts.

When the holding switch contacts open, the capacitor again starts charging to repeat the cycle.

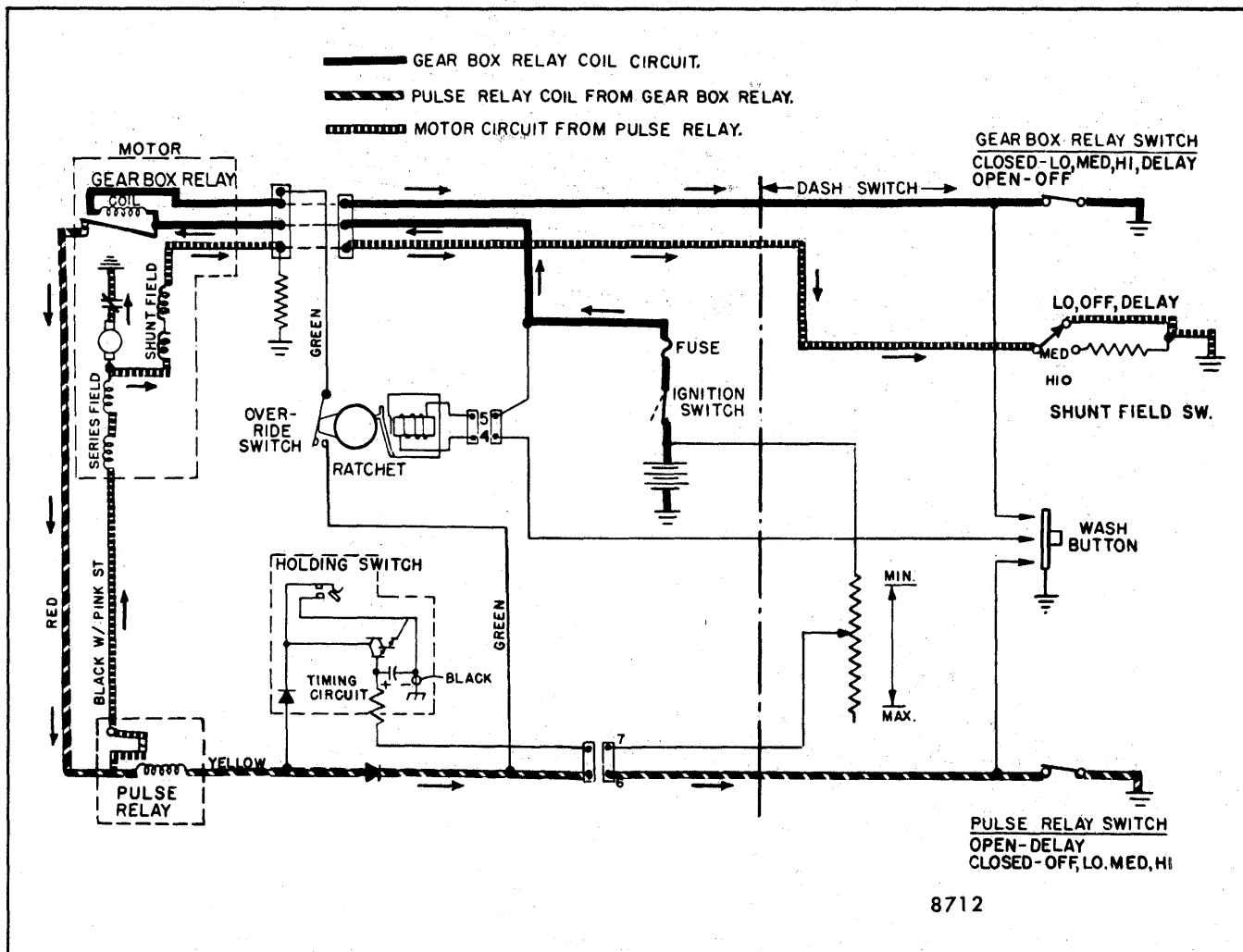


Fig. 2-5-Dash Switch in "LO" Speed

NOTE: When the wiper is operating in the delay mode, the blades stop at the end of the normal wipe pattern (i.e., blades do not move down in their normal park position).

The amount of delay between wiping strokes is controlled by the variable resistor in the dash switch. Increasing the resistance increases the amount of time between wipe strokes.

LO-MEDIUM-HI Speed Motor Operation

Wiper motor speed variations are accomplished by changing the strength of the shunt field as follows:

1. **LO SPEED** - The shunt field is connected directly to ground at the dash switch in the "LO", "DELAY" and "OFF" positions.

2. **MEDIUM SPEED** - The shunt field circuit is completed to ground via two resistors which are actually connected in parallel. One resistor is located near the terminal board on the wiper motor gearbox relay, the other resistor is located on the dash switch.
3. **HI SPEED** - The shunt field circuit is opened to ground at the dash switch. However, it is completed to ground through the resistor located on the motor terminal board-relay assembly.

Shutting The Wiper "OFF"

Moving the dash switch to the "OFF" position accomplished three functions:

1. The gearbox relay coil circuit is opened allowing the spring-loaded relay latch arm to move out

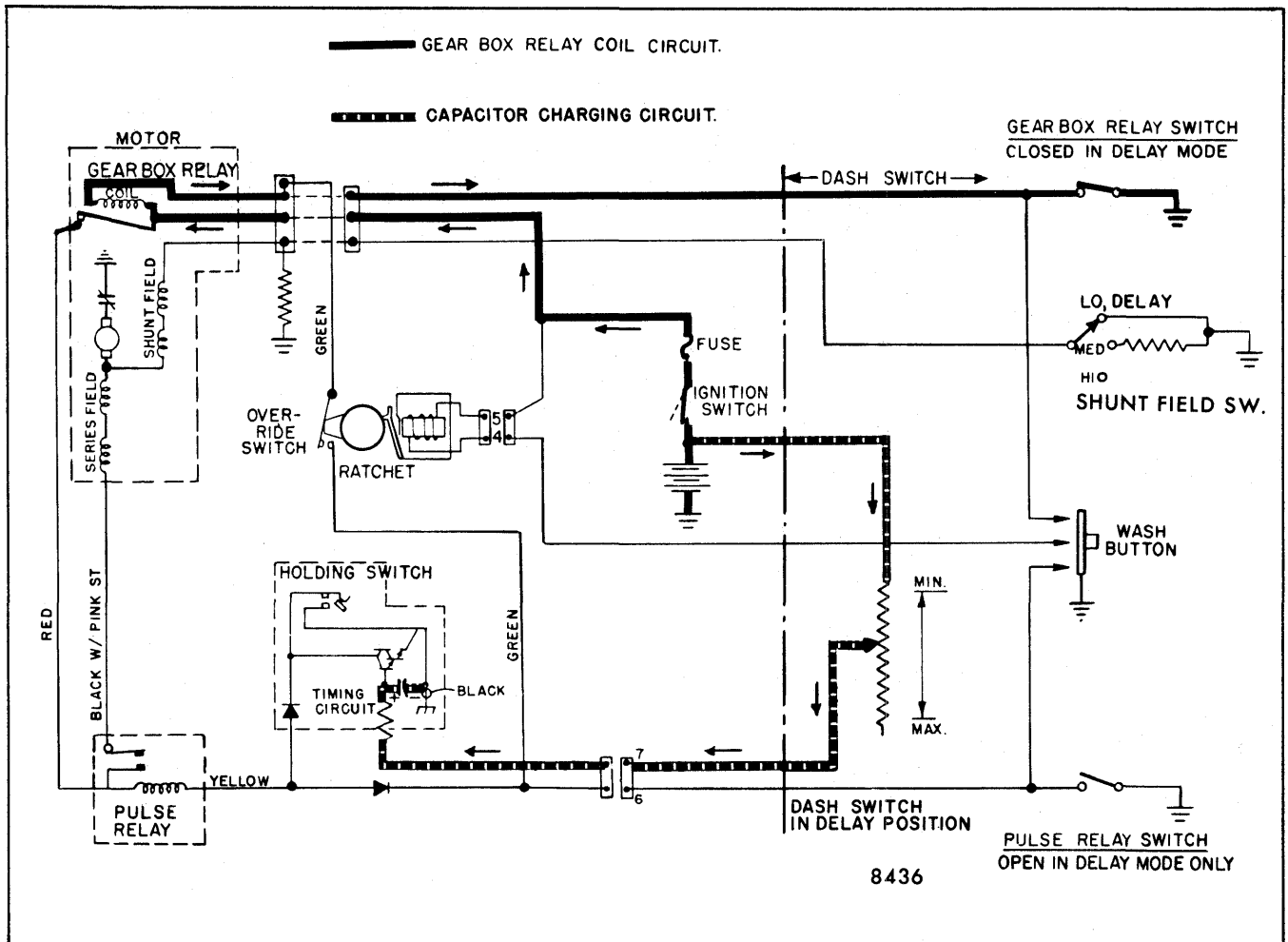


Fig. 2-6-Timing Capacitor Charging Circuit

- into the path of the gear mechanism (Fig. 2-9). However, the gearbox relay switch contacts are still closed and therefore the B plus circuit to the pulse relay is still maintained.
2. The pulse relay coil circuit is connected directly to ground at the dash switch. This will maintain the motor B plus feed circuit via the relay contacts during the park cycle.
 3. The shunt field is connected directly to ground at the dash switch to maintain LO speed operation during park cycle.

The continuing rotation of the motor gear causes the gear drive pawl to engage the relay latch arm (Fig. 2-10). This action unlocks the output shaft and wiper crank arm from the gear. The output shaft extends through the gear tube off center and as the gear continues to rotate, a cam action results.

When the cam action described above is completed, it accomplishes two functions:

1. It causes the gear assembly drive pawl to push the relay latch arm into the relay housing (Fig. 2-11) which, in turn, opens the relay switch contacts. This opens the B plus circuit to the pulse relay coil. The pulse relay contacts then open which shuts off the B plus feed to the motor.
2. Since the wiper crank arm is attached to the wiper output shaft, the resulting cam action, previously described, causes a somewhat lateral movement of the crank arm. This lateral movement causes the wiper transmission to produce the additional angular rotation to move the blades into the full park position below hood level.

DIAGNOSTIC PROCEDURES

The diagnostic procedures covered in this manual are based on certain key tests and operational checks that will help locate the problem.

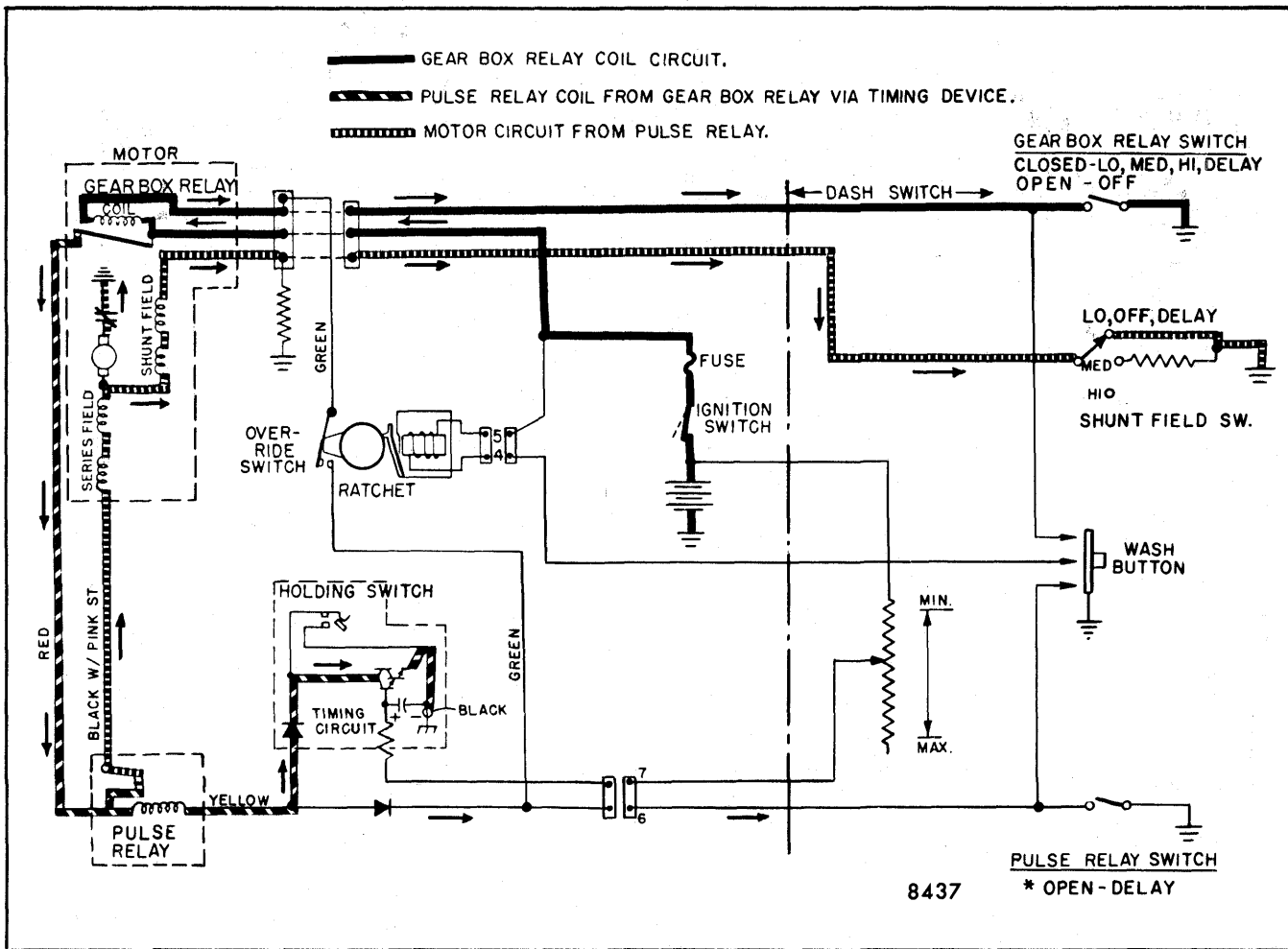


Fig. 2-7-Pulse Relay Coil Circuit via Timing Device

NOTE: Illustrations referred to within the diagnostic procedures are shown following the complete procedures.

Prior to starting the diagnostic procedure, it is very important to confirm the reported condition with a complete operational check, including the washer system. Then match up the condition with one in the Diagnosis Chart.

NOTE: When the diagnostic procedure requires removal of the washer pump, BE SURE to refer to "Washer Pump Cover Removal". If wiper unit (wiper-washer assembly) is to be diagnosed on a detached

basis, refer to "Bench Operational Test". Determine trouble that exists, then refer to the diagnostic procedures.

It is possible that a wiper may have more than one problem. When this exists, and one problem has been located and repaired, refer back to the chart and follow the procedures for the second condition.

CAUTION: When a substitute dash switch is tried in the system, BE SURE to connect it to ground to prevent damage to timing circuit components.

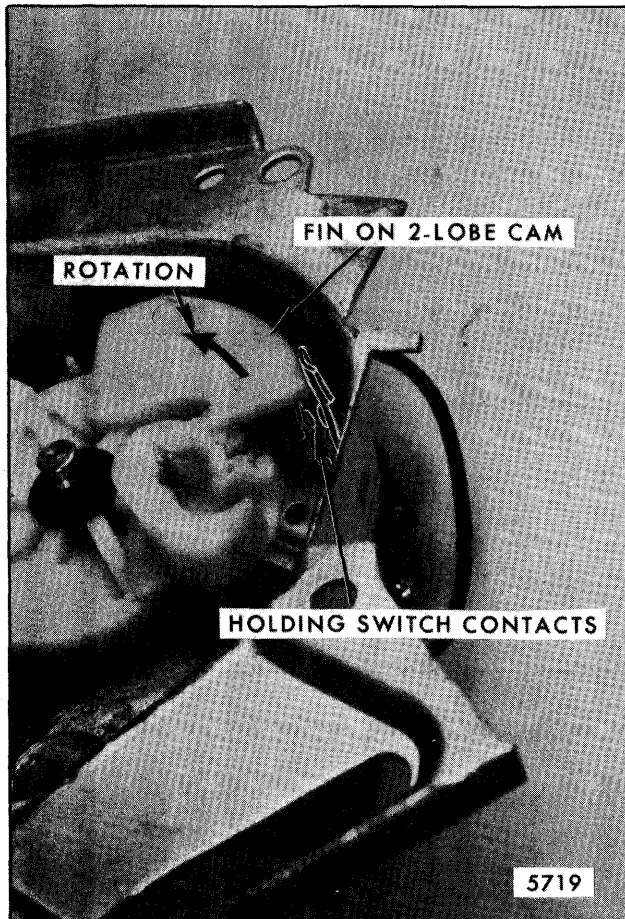


Fig. 2-8-Holding Switch Contacts

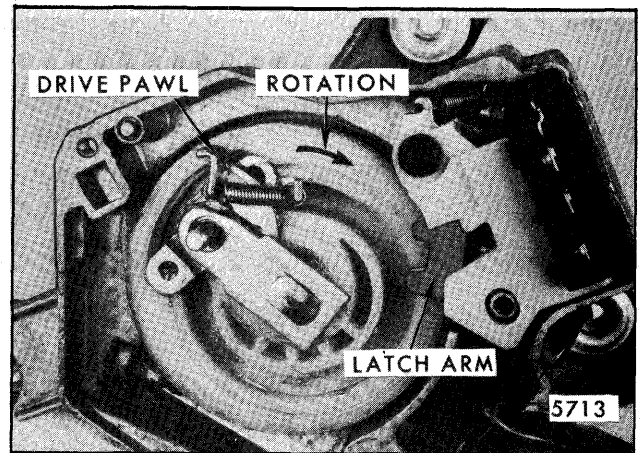


Fig. 2-9-Gear in Normal Run Position

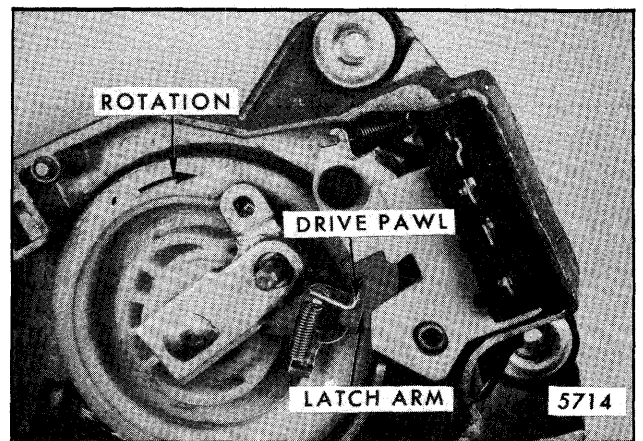


Fig. 2-10-Wiper Shutting "Off"

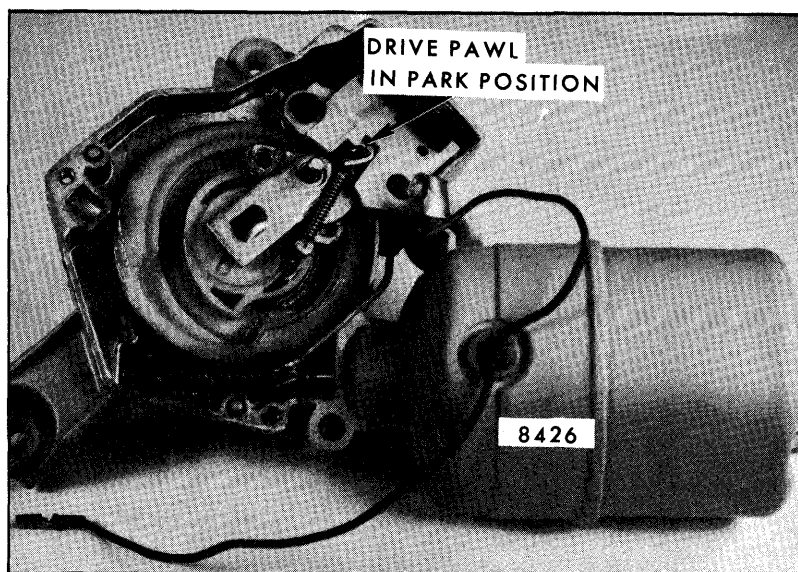


Fig. 2-11-Drive Pawl in "Park"

DIAGNOSIS CHART
MODIFIED
PULSE WIPER SYSTEM

CONDITION	REFERENCE	CONDITION	REFERENCE
1. Wiper system inoperative.	Fig. 2-13 2-14	6. Wiper won't shut off - blades move in and out of park position (15-20° travel).	Fig. 2-19
2. Wiper inoperative in "Delay Mode".	Fig. 2-15	7. Wiper has "HI" speed only.	Fig. 2-20
3. Wiper will not delay between wipes - runs steady with dash switch lever in any delay position - Min. to Max.	Fig. 2-16	8. Wiper has "LO" speed only. (Operates correctly in delay mode and shuts off OK).	Fig. 2-21
4. Wiper won't shut off and blades operate thru normal wipe pattern. (Washer pump not pumping)	Fig. 2-17	9. Intermittent wiper operation. (Blades stop at random positions on windshield).	Fig. 2-22
5. Wiper won't shut off and washer pump, pumps continuously.	Fig. 2-18		

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Fig. 2-12-Modified Pulse Wiper System Diagnosis Chart Index

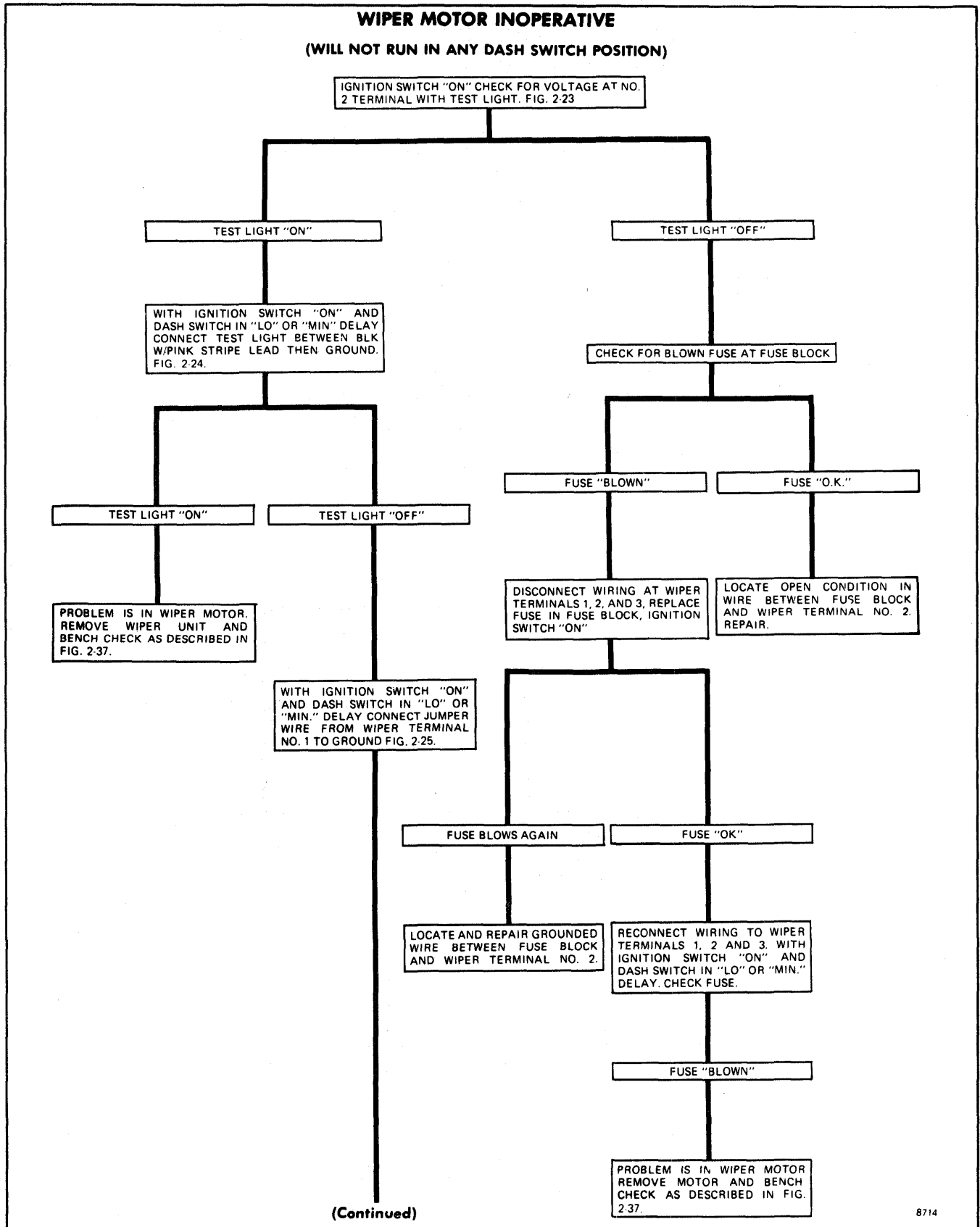
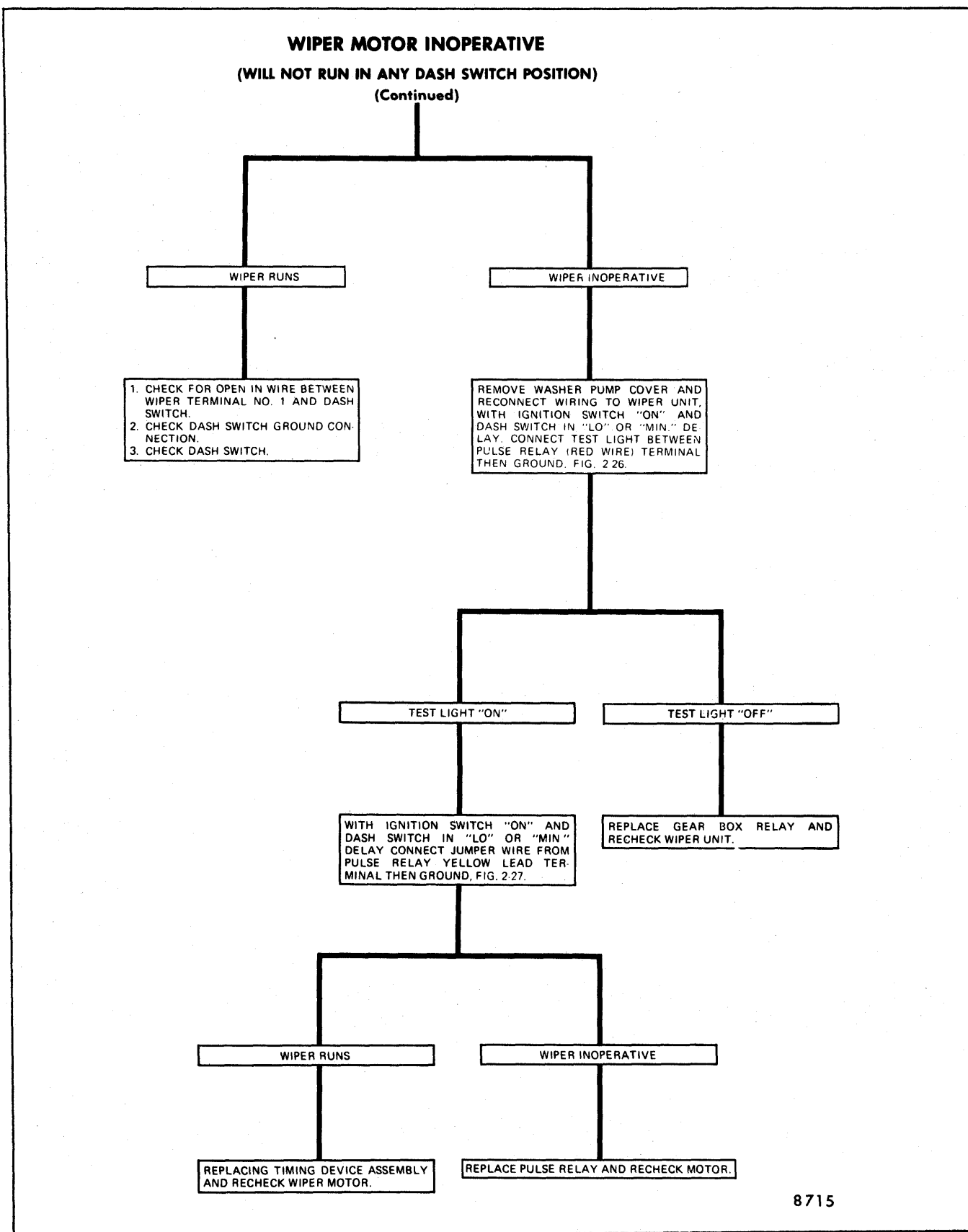


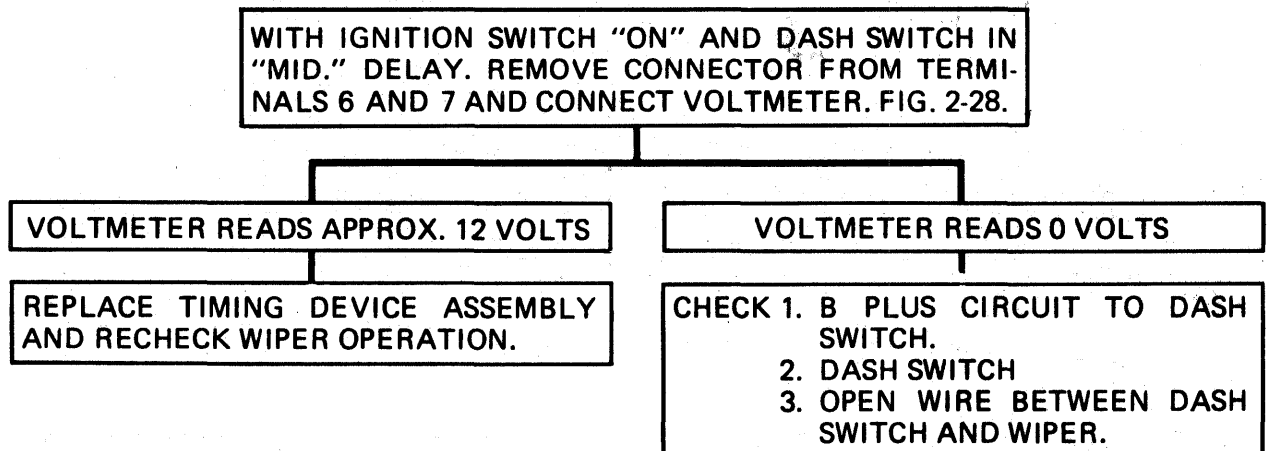
Fig. 2-13-Modified Pulse Wiper Diagnosis Chart - Condition 1



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Fig. 2-14-Modified Pulse Wiper Diagnosis Chart - Condition 1

WIPER INOPERATIVE IN DELAY MODE OPERATES CORRECTLY IN LO, MED, HI

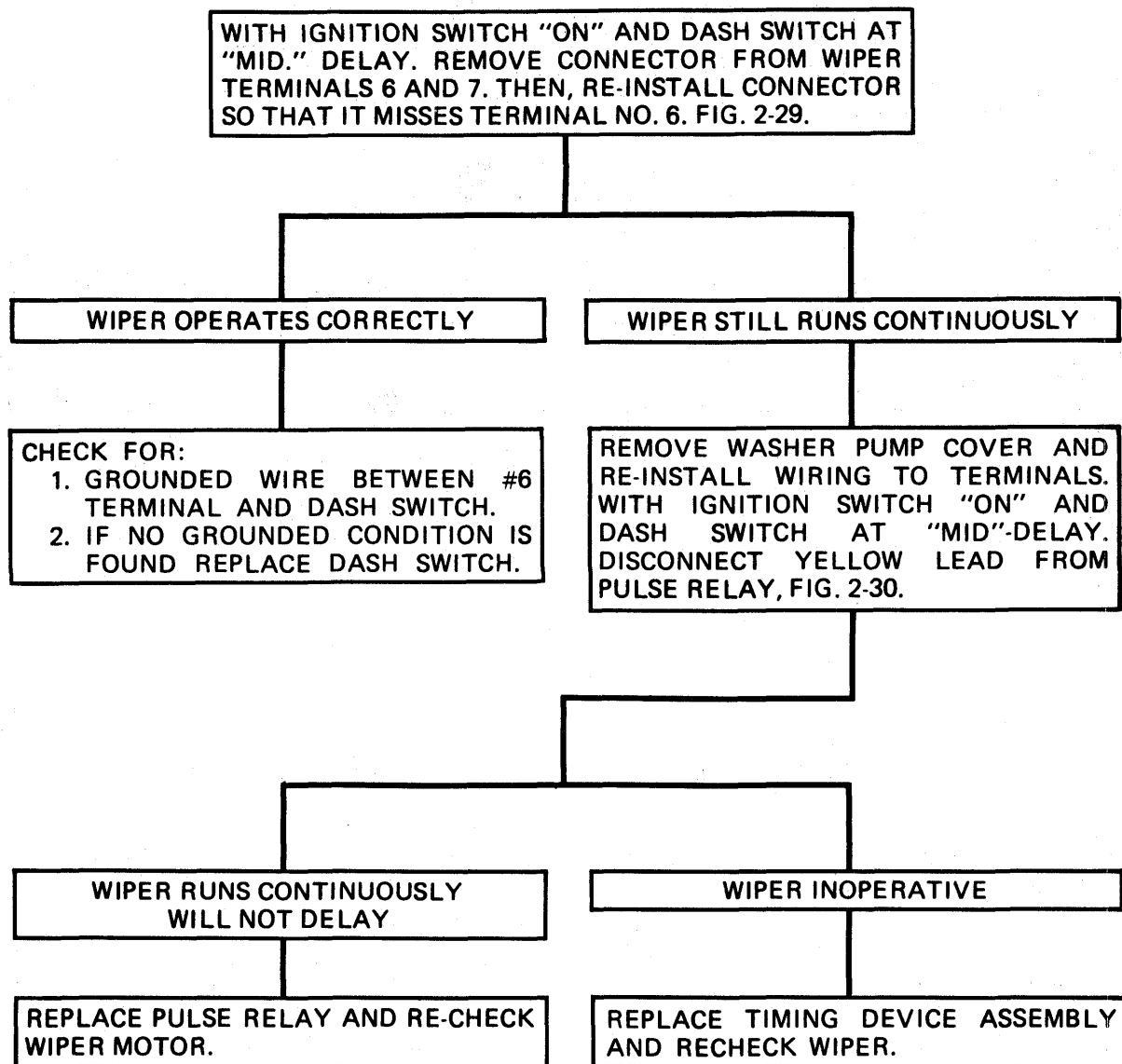


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Fig. 2-15-Modified Pulse Wiper Diagnosis Chart - Condition 2

WIPER WILL NOT DELAY BETWEEN WIPES — RUNS STEADY WITH DASH SWITCH IN DELAY MODE

**(WIPER OPERATES CORRECTLY IN OTHER
MODES AND SHUTS "OFF" O.K.)**

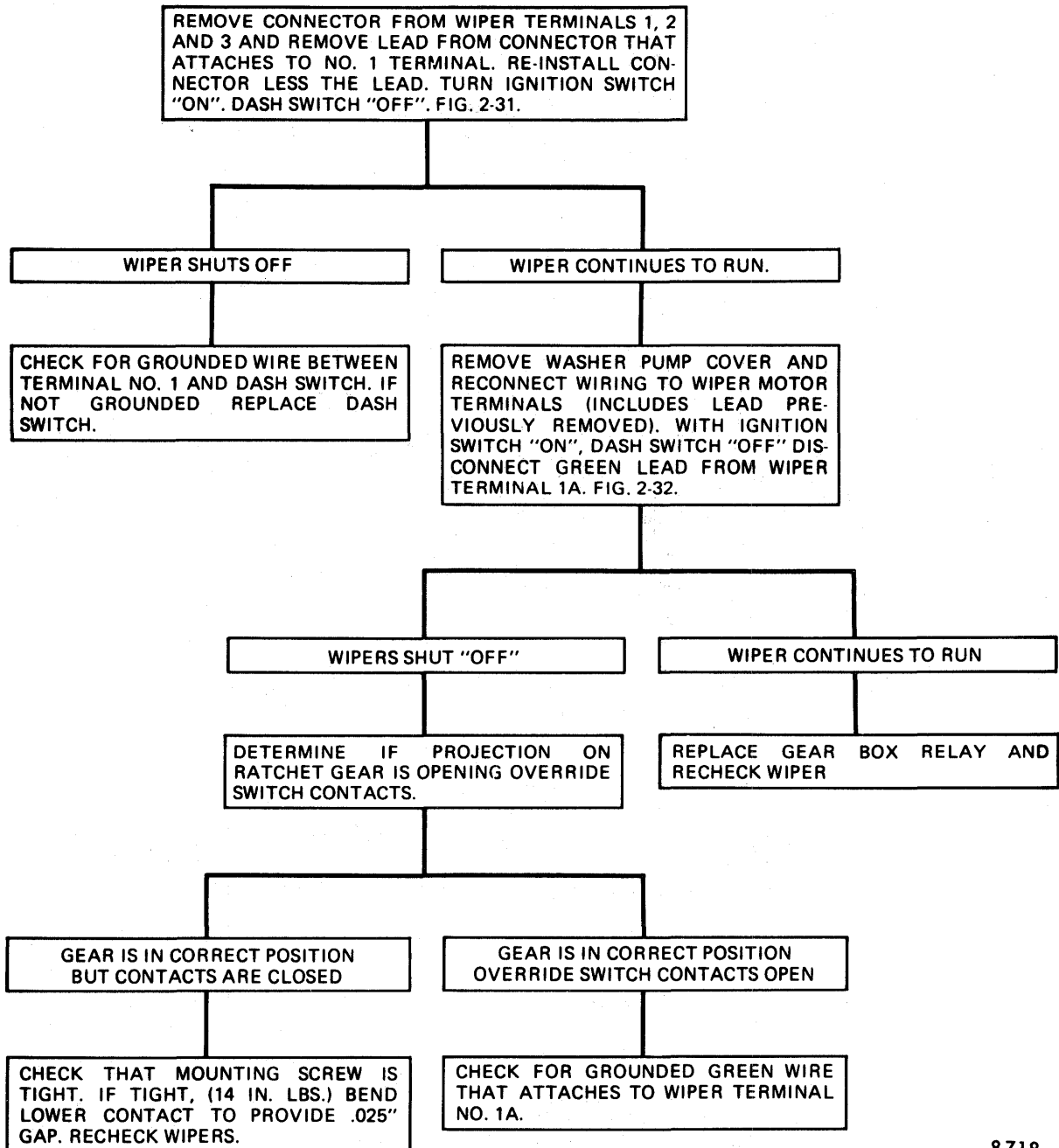


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Fig. 2-16-Modified Pulse Wiper Diagnosis Chart - Condition 3

WIPER WON'T SHUT "OFF" **(BLADES OPERATE THROUGH NORMAL WIPE PATTERN)**

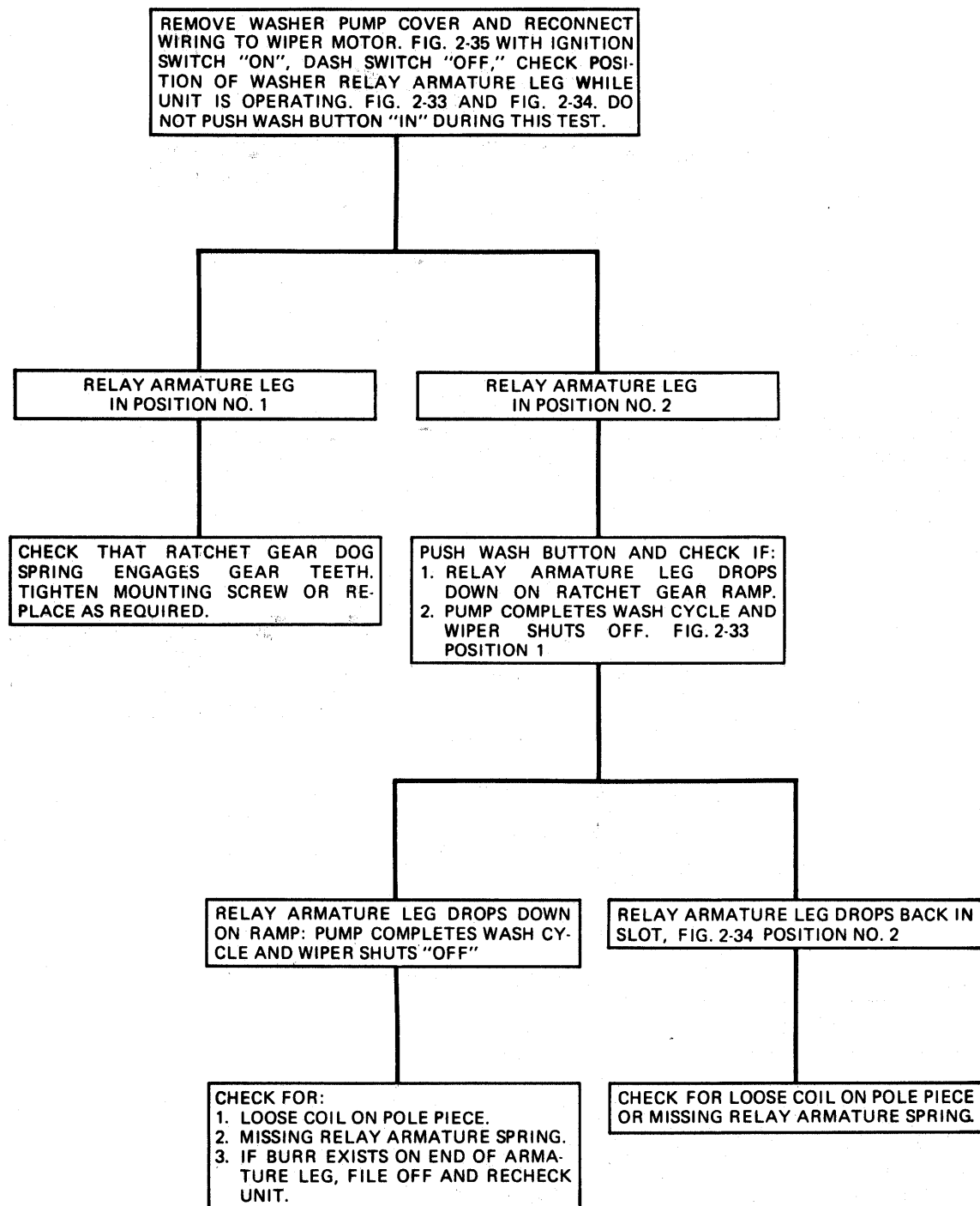
**NOTE: IF WASHER PUMP IS ALSO PUMPING
 CONTINUOUSLY REFER TO CONDITION NO. 5**



8718

Fig. 2-17-Modified Pulse Wiper Diagnosis Chart - Condition 4

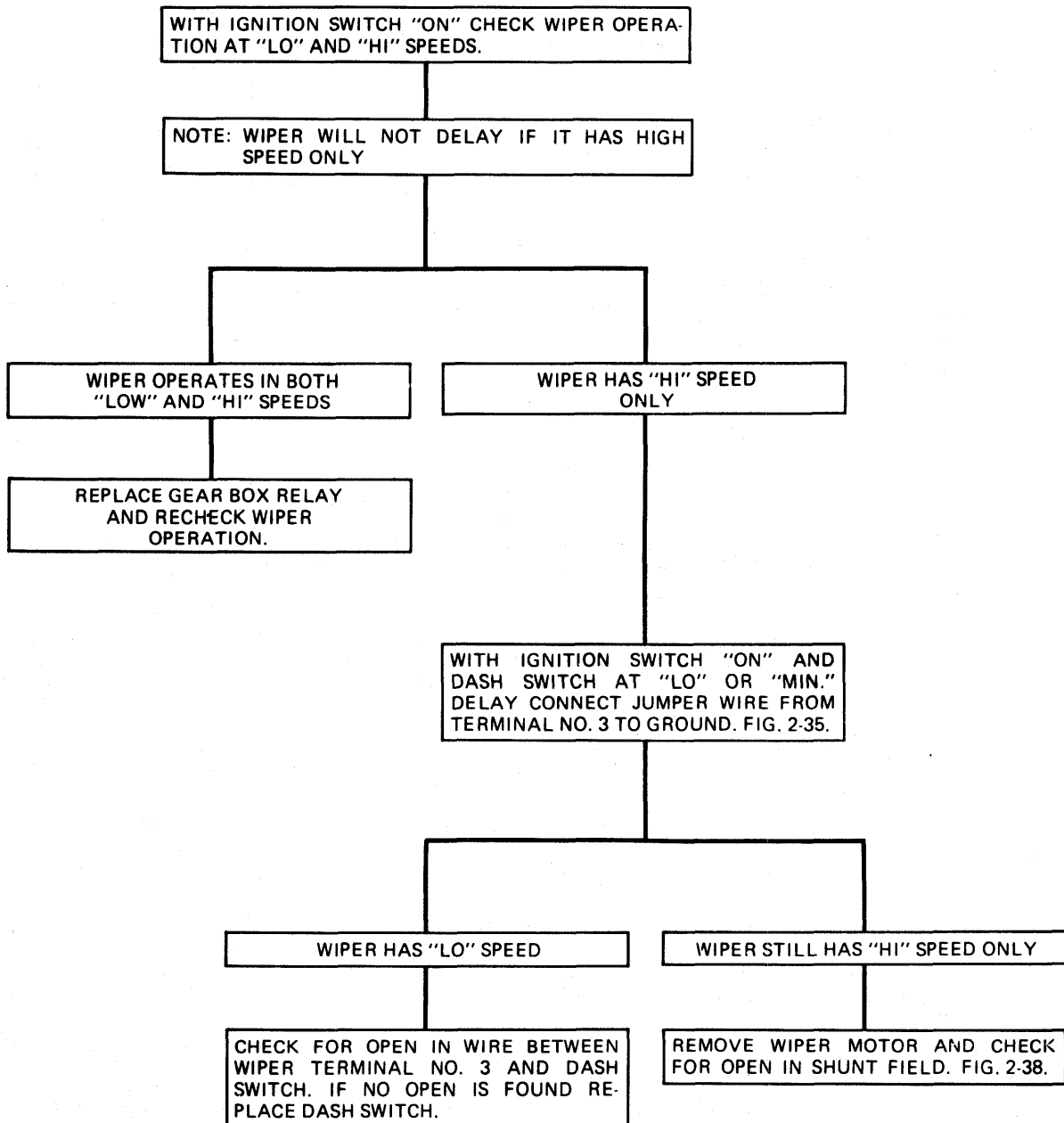
WIPER WON'T SHUT "OFF" AND WASHER PUMP PUMPS CONTINUOUSLY



8719

Fig. 2-18-Modified Pulse Wiper Diagnosis Chart - Condition 5

**WIPER WILL NOT SHUT OFF
BLADES MOVE IN AND OUT OF PARK POSITION**



8720

Fig. 2-19-Modified Pulse Wiper Diagnosis Chart - Condition 6

WIPER HAS "HIGH" SPEED ONLY

WITH IGNITION SWITCH "ON" AND DASH SWITCH AT "LO" OR "MIN." DELAY CONNECT JUMPER WIRE FROM TERMINAL NO. 3 TO GROUND. FIG. 2-35.

WIPER HAS "LO" SPEED

CHECK FOR OPEN IN WIRE BETWEEN WIPER TERMINAL NO. 3 AND DASH SWITCH. IF NO OPEN IS FOUND REPLACE DASH SWITCH.

WIPER STILL HAS "HI" SPEED ONLY

REMOVE WIPER MOTOR AND CHECK FOR OPEN IN SHUNT FIELD. FIG. 2-38.

8721

Fig. 2-20-Modified Pulse Wiper Diagnosis Chart - Condition 7

WIPER HAS "LO" SPEED ONLY (OPERATES CORRECTLY IN DELAY MODE AND SHUTS OFF CORRECTLY)

REMOVE CONNECTOR FROM TERMINALS 1, 2 AND 3. THEN PULL OUT TERMINAL FROM CONNECTOR THAT NORMALLY GOES TO NO. 3 TERMINAL. TURN IGNITION SWITCH "ON" AND DASH SWITCH TO "HI" FIG. 2-36.

WIPER HAS "HI" SPEED

CHECK FOR GROUNDED WIRE BETWEEN TERMINAL NO. 3 AND DASH SWITCH. IF NO GROUND IS FOUND REPLACE DASH SWITCH.

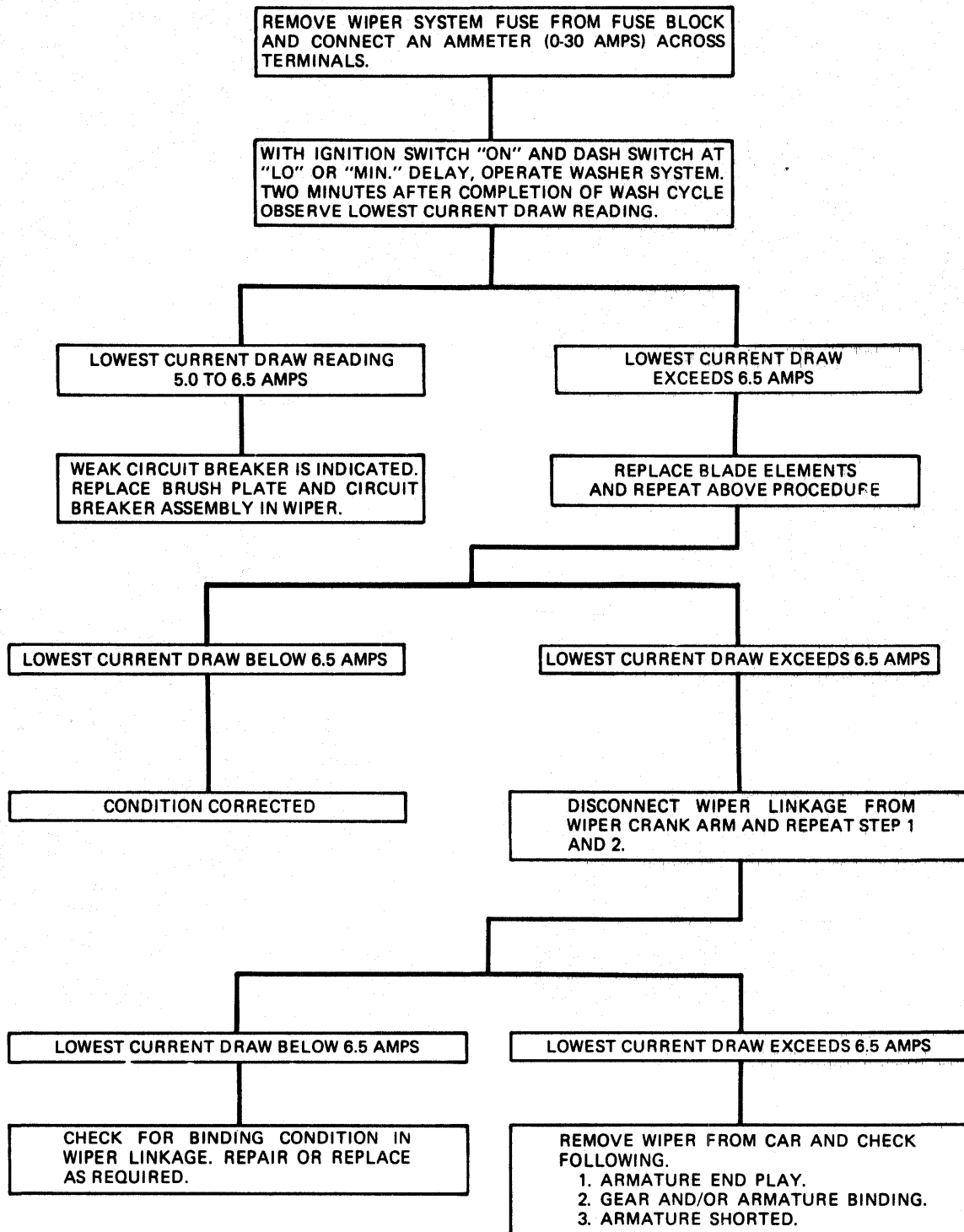
WIPER STILL HAS "LO" SPEED

REMOVE WIPER MOTOR AND CHECK FOR GROUNDED CONDITION IN SHUNT FIELD. REFER TO CURRENT DRAW CHART FIG. 2-38.

8722

Fig. 2-21-Modified Pulse Wiper Diagnosis Chart - Condition 8

INTERMITTENT WIPER OPERATION BLADES STOP AT RANDOM POSITIONS ON WINDSHIELD



8723

Fig. 2-22-Modified Pulse Wiper Diagnosis Chart - Condition 9

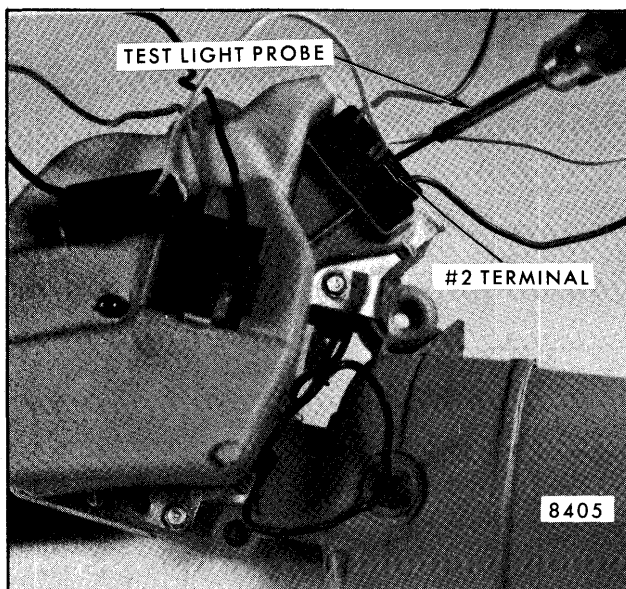


Fig. 2-23-Condition 1 - Wiper Motor Inoperative

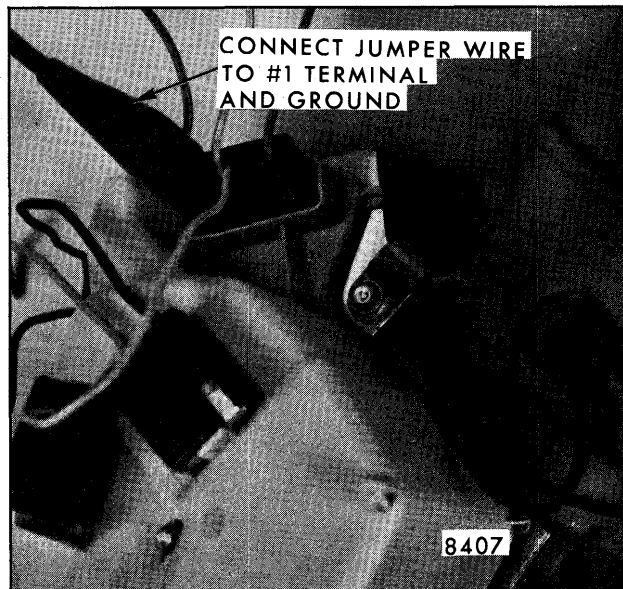


Fig. 2-25-Condition 1 - Wiper Motor Inoperative

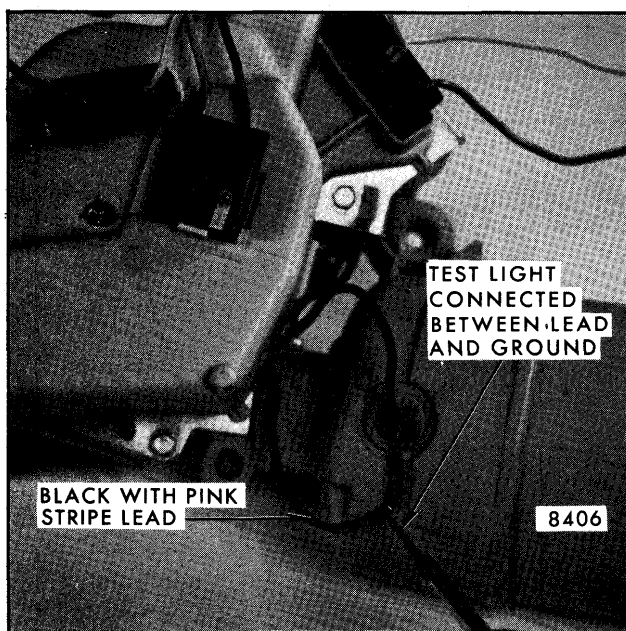


Fig. 2-24-Condition 1 - Wiper Motor Inoperative

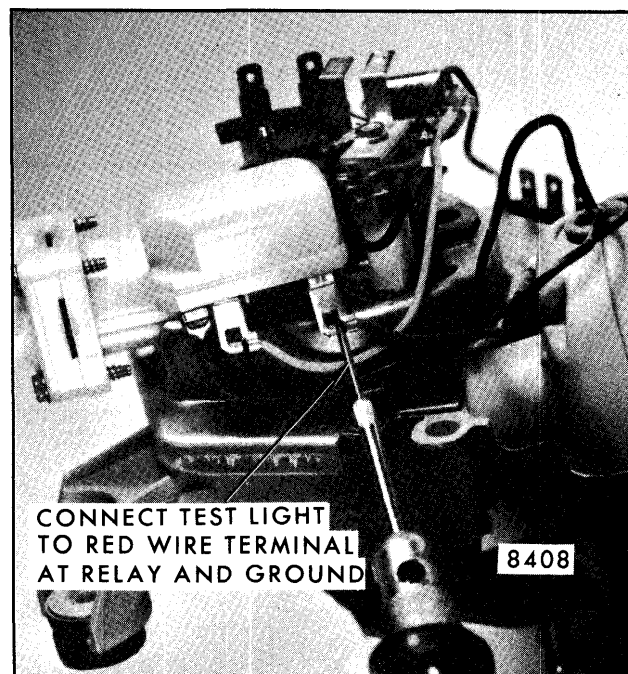


Fig. 2-26-Condition 1 - Wiper Motor Inoperative

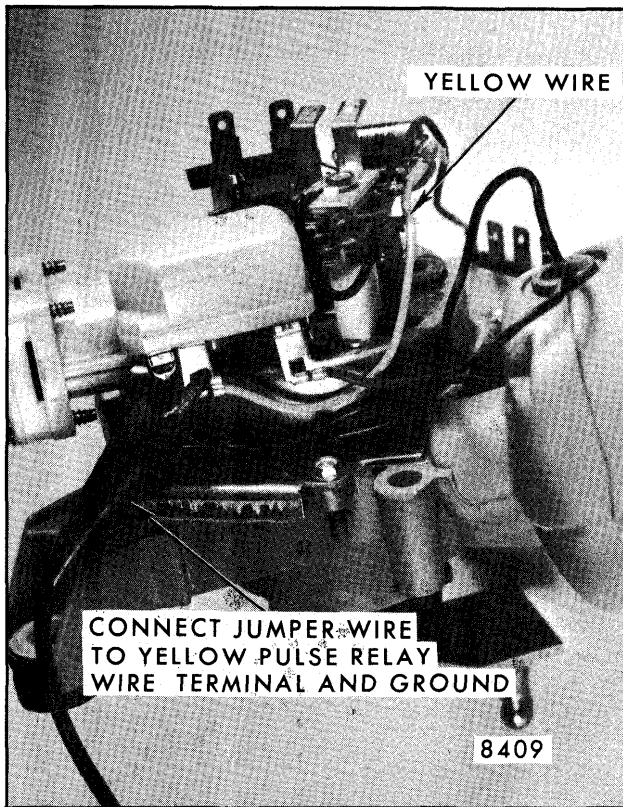


Fig. 2-27-Condition 1 - Wiper Motor Inoperative

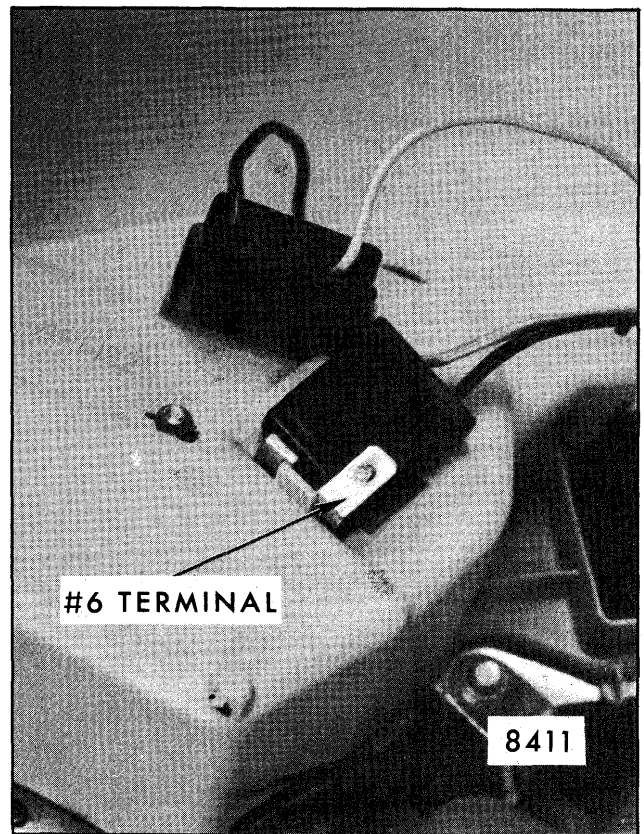


Fig. 2-29-Condition 3 - Wiper Will Not Delay Between Wipes

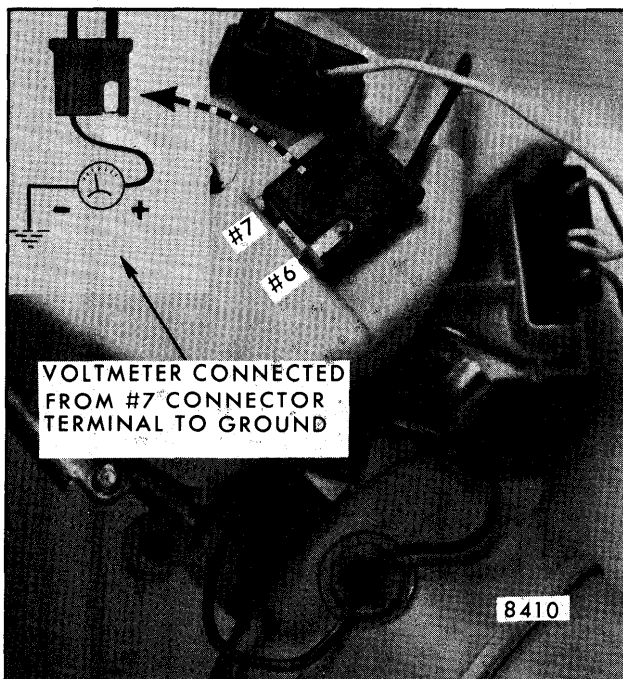


Fig. 2-28-Condition 2 - Wiper Inoperative in Delay Mode

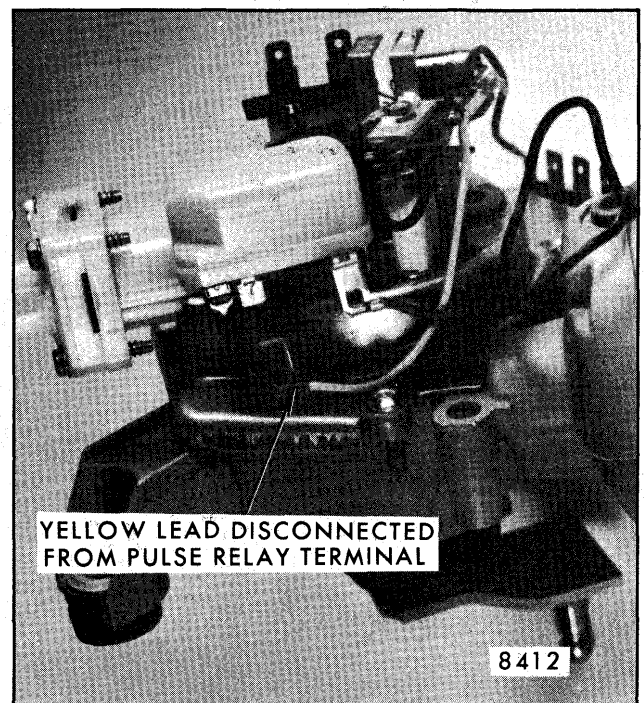


Fig. 2-30-Condition 3 - Wiper Will Not Delay Between Wipes



Fig. 2-31-Condition 4 - Wiper Will Not Shut Off



Fig. 2-32-Condition 4 - Wiper Will Not Shut Off

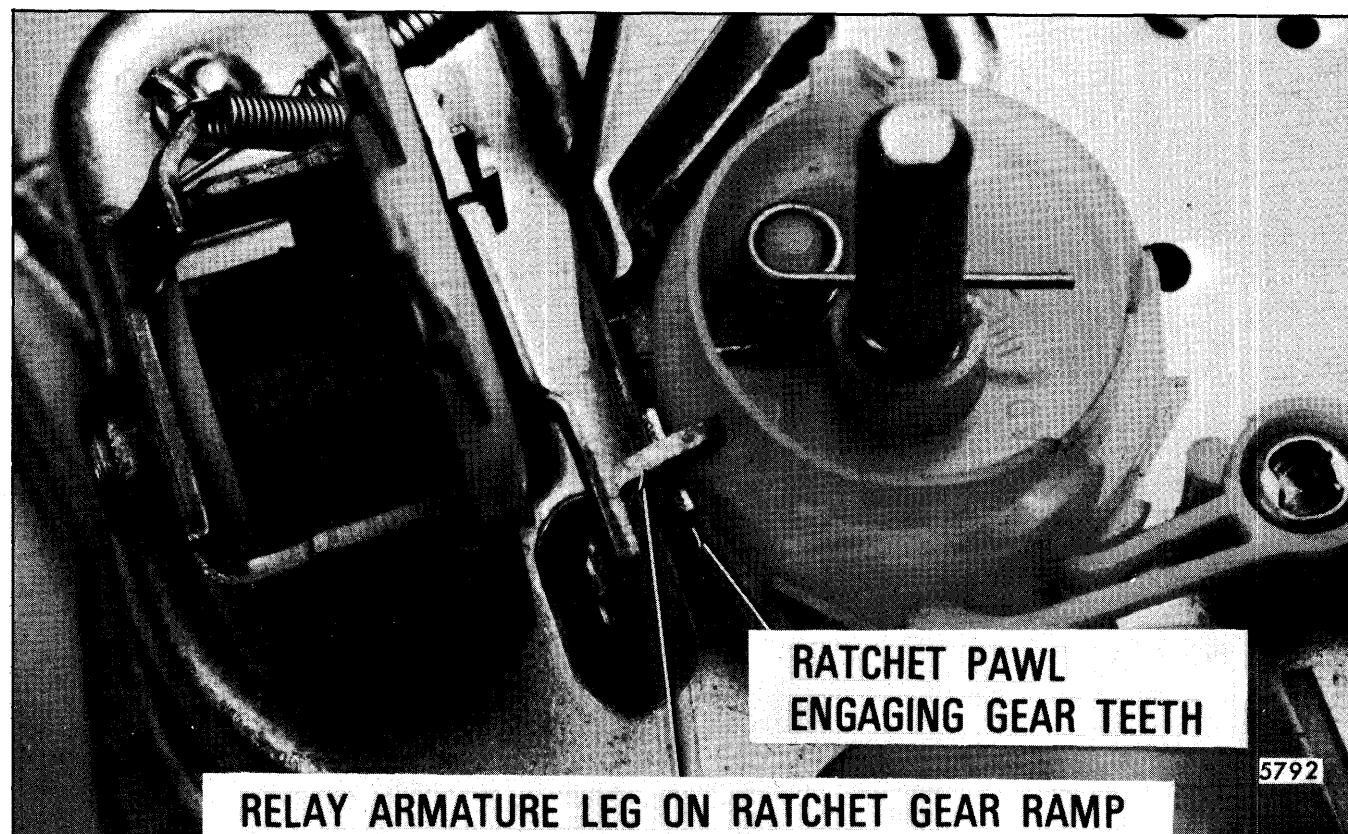


Fig. 2-33-Condition 5 - Wiper Will Not Shut Off Washer Pump Pumps Continuously - Position 1

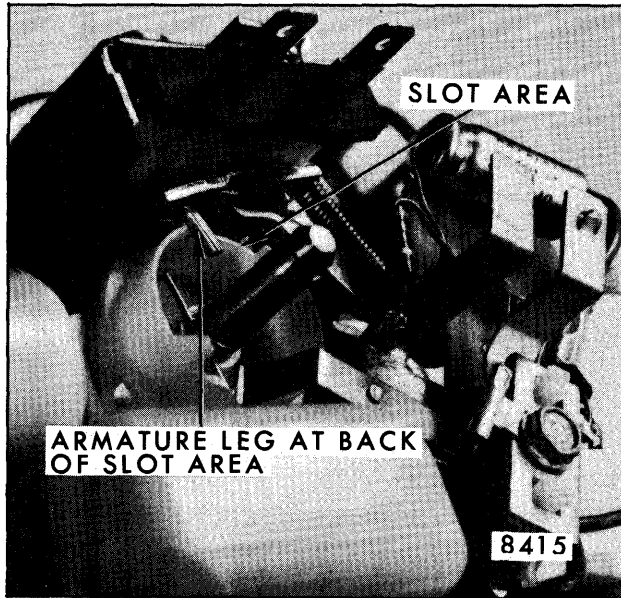


Fig. 2-34-Condition 5 - Wiper Will Not Shut Off - Washer Pump Pumps Continuously - Position 2

GEARBOX DISASSEMBLY AND ASSEMBLY PROCEDURES

Relay Switch - Terminal Board Assembly

1. Remove washer pump from gearbox (refer to "Washer Disassembly").
2. If wiper gear drive pawl is in full park position (Fig. 2-11), operate the motor as required to move pawl out of relay slot (Fig. 2-37).

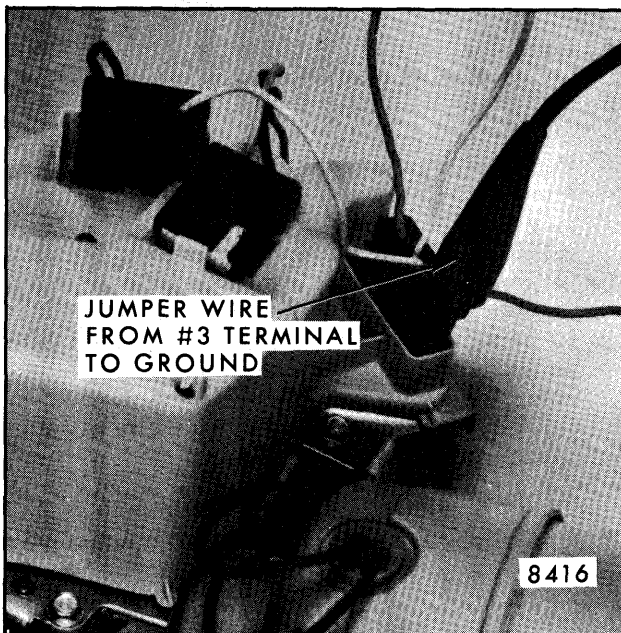


Fig. 2-35-Condition 6 - Wiper Will Not Shut Off - Blades Move in and Out of Park Position

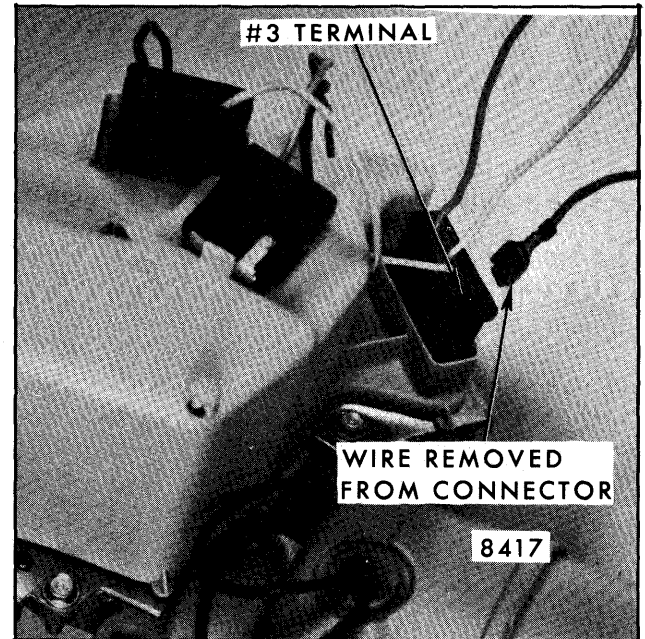


Fig. 2-36-Condition 8 - Wiper Has "LO" Speed Only

NOTE: If wiper will not run, remove the gear mechanism.

3. If wiper gear drive pawl is not in full park position (Fig. 2-9), remove relay attaching screw and lift relay-terminal board assembly out of gearbox.
4. Unsolder the black lead from relay terminal. Refer to Figure 2-41 when resoldering leads.
5. When reassembling relay in gearbox, BE CAREFUL to route leads in such a manner as to avoid having them pinched between relay and casting.
6. Refer to Figure 2-37 and operate wiper to park position, then reinstall washer pump. Refer to reassembly of washer to wiper gearbox (Fig. 2-40).

Drive Gear Disassembly

1. Clamp crank arm in vise and remove crank arm retaining nut, crank arm, rubber seal cap, retaining ring, shim washers, shield and spacer washer in the order indicated (Fig. 2-42).
2. Slide gear assembly out of housing (Fig. 2-43).

NOTE: If relay-terminal board assembly has not been removed, move the relay latch arm out of the way.

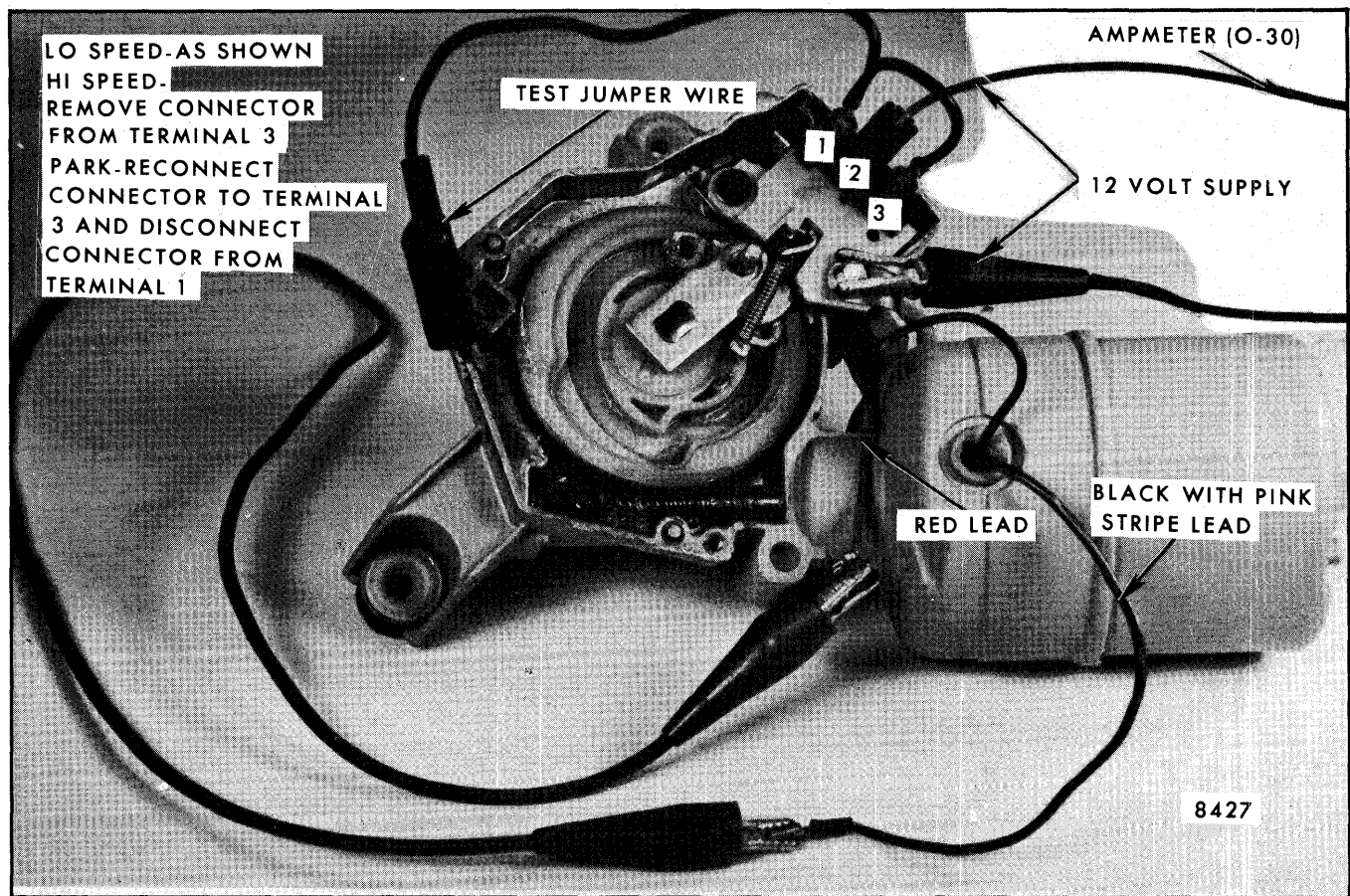


Fig. 2-37-Modified Pulse Motor Bench Operation Test

3. Slide drive plate and shaft out of gear and tube (Fig. 2-44), and remove the drive pawl, lock pawl and coil spring as required. Save the inside spacer washer for reassembly.

NOTE: The replacement drive plate and shaft assembly is equipped with two retaining ring grooves. The instructions in the package call out which groove to use.

Drive Gear Reassembly

1. Position drive and lock pawls on drive plate as shown in Figure 2-44.
2. Slide gear and tube over the drive plate shaft. Move drive and lock pawls as required to allow their respective pins to fit in the gear guide channel.
3. Holding the gear, manually rotate the drive plate in the direction of the arrow until the drive and lock pawl guide pins fit into the gear pockets (Fig. 2-45).
4. Reinstall pawl spring between lock and drive pawls (Fig. 2-45).

NOTE: Be careful to maintain the gear mechanism in its assembled position during step 5.

5. Assemble inner spacer washer over the gear tube and reassemble gear mechanism in gearbox (Fig. 2-43).
6. Reassemble parts removed in step 1 under disassembly.

NOTE: Use shim washers as required to obtain a maximum of .004 end play.

7. Refer to Figure 2-37 and operate wiper to park position; then, position crank arm on output shaft flat so that it points in the direction shown in Figure 2-46. Next, install crank arm retaining nut finger-tight.
8. Clamp crank arm in vise and torque retaining nut to approximately 300 inch pounds.
9. Reinstall washer pump to gearbox. Refer to washer pump to wiper gearbox assembly instructions.

INTERPRETATION OF CURRENT DRAW READINGS			
LO SPEED OPERATION - NORMAL CURRENT @ 12V - 5-6 AMPS			
CONDITION	CURRENT DRAW (AMPS)	INTERPRETATION	REFER TO FIGURE 2-143
Wiper Inoperative	0	Open condition in gearbox relay coil.	
Wiper Inoperative	2.5 - 3.5	Open armature condition (commutator hooks - broken coil leads).	(I) (H)
	Open Armature Circuit	Hung brush.	(C)
		Open splice connections.	(A) (J)
		Circuit breaker contacts open.	(G)
Wiper Inoperative	20 - 25 (Stall Current)	Gear assembly jammed. Armature bound up.	
Wiper Inoperative	30+ Dead short condition	Check for armature thrown winding. Pinched black-pink stripe lead.	(F)
Wiper Operating	7.0+	Armature shorted. Binding condition in motor and/or gearbox.	
Wiper Operating - Won't shut off	5 - 6.0	Gearbox Relay	8471

Fig. 2-38-Interpretation of Current Draw Readings

MOTOR DISASSEMBLY AND ASSEMBLY PROCEDURES

Remove washer pump from wiper gearbox. It is not necessary to disassemble the gearbox.

Brush Plate and Circuit Breaker Removal

1. Scribe a reference line along the side of the casting and end cap to insure proper reassembly (Fig. 2-47).
2. Remove the two motor tie bolts.
3. Feed exposed excess length of motor leads through the casting grommet and carefully back the case and field assembly plus the armature away from the casting (Fig. 2-47) until the armature shaft clears the casting bearing.

NOTE: If necessary, remove the armature end play adjusting screw and insert a rod through the opening in order to apply pressure against the end of the armature.

4. Carefully note the routing, then unsolder the black lead from circuit breaker (refer to Fig. 2-48).
5. Straighten out the four tabs that secure the brush plate to the field coil bracket (Fig. 2-48).

CAUTION: Be careful not to break any of the retainer tabs.

6. Install "U" shaped brush retainer clip over brush holder that has brush lead attached to circuit breaker (Fig. 2-48).
7. Holding the opposite brush from that retained in step 6, carefully lift the brush holder off the

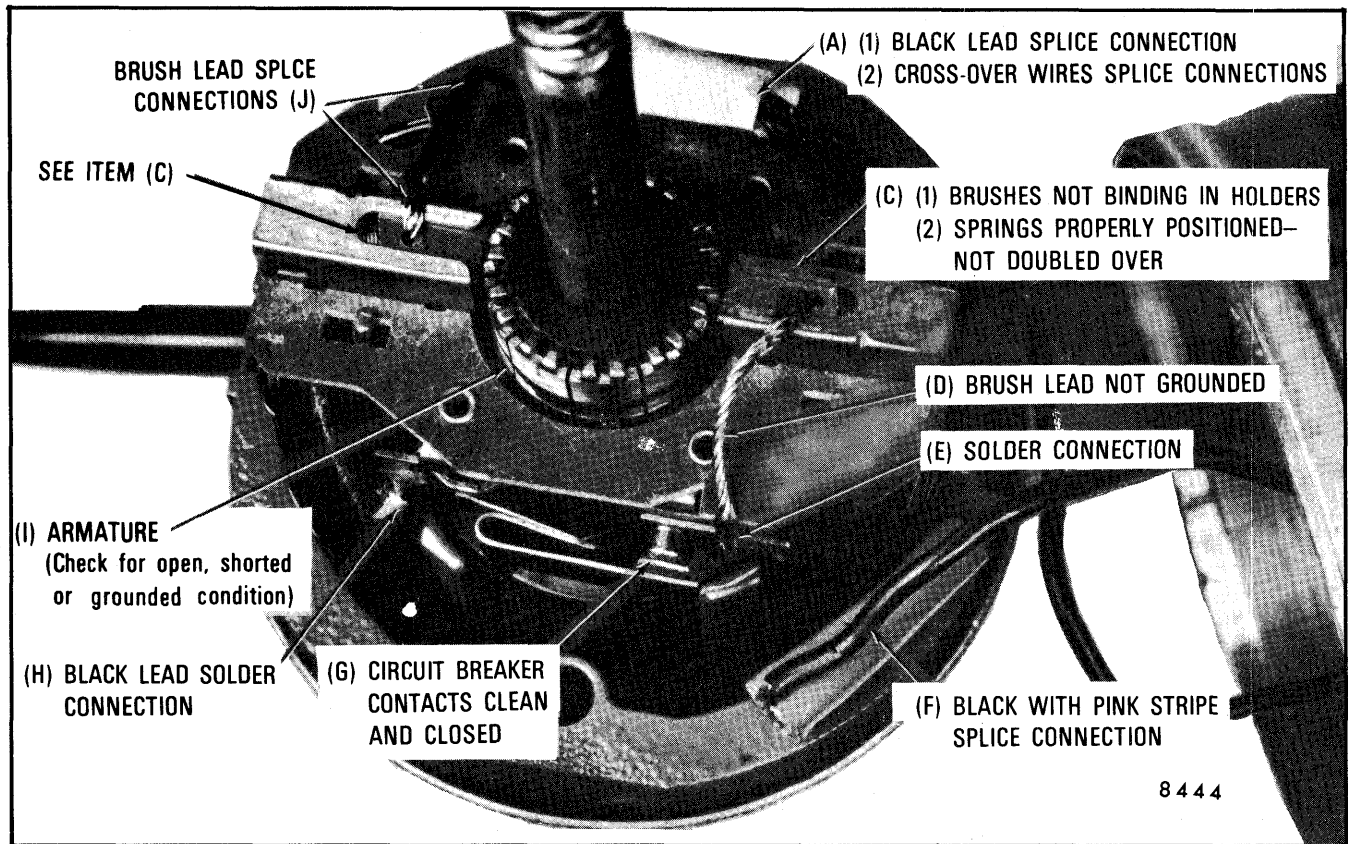


Fig. 2-39-Visual Inspection Modified Pulse Motor

mounting tabs far enough to clear the armature commutator.

8. Allow the brush held in step 7 to move out of its holder. Remove the brush spring and lift the brush holder off the armature shaft. Refer to Motor Reassembly for reinstalling brush plate and circuit breaker assembly (steps 5, 6, 7 and 9 through 12).

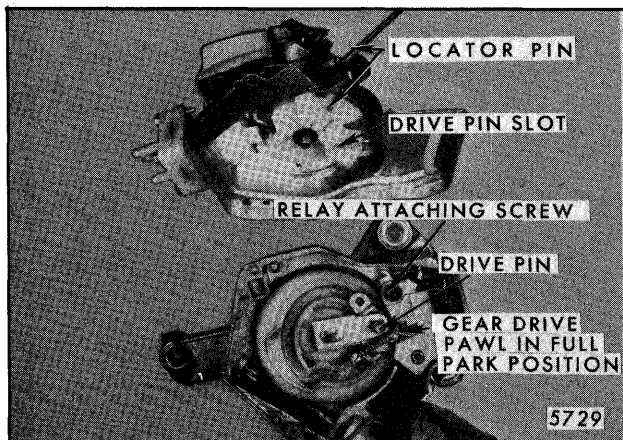


Fig. 2-40-Installing Pump to Motor

Armature Removal

1. Follow steps 1 through 8 under brush plate removal.
2. Lift armature out of case and field assembly.

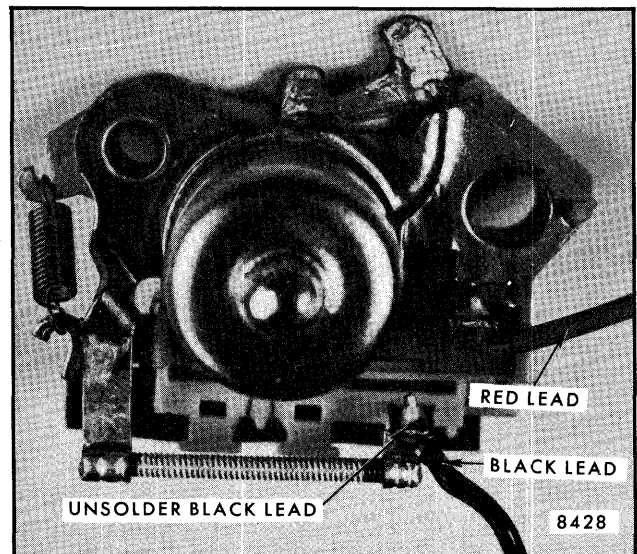


Fig. 2-41-Pulse Relay Terminal

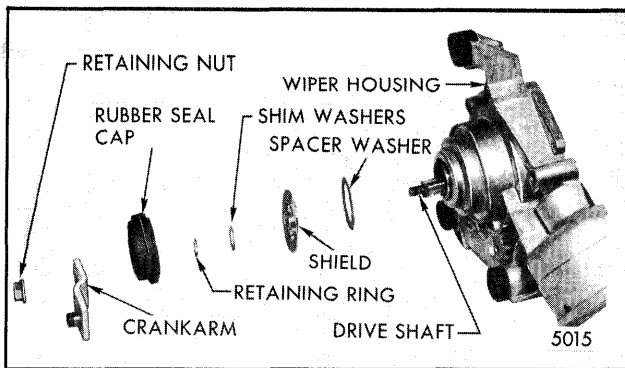


Fig. 2-42-Crank Arm Components

3. Remove thrust ball from end of armature shaft to save for reassembly.

NOTE: Thrust ball may be easily removed with a magnet.

4. To reassemble armature, follow steps 3 through 10 under motor reassembly.

Case and Field Assembly Removal

1. Remove brush plate and armature.

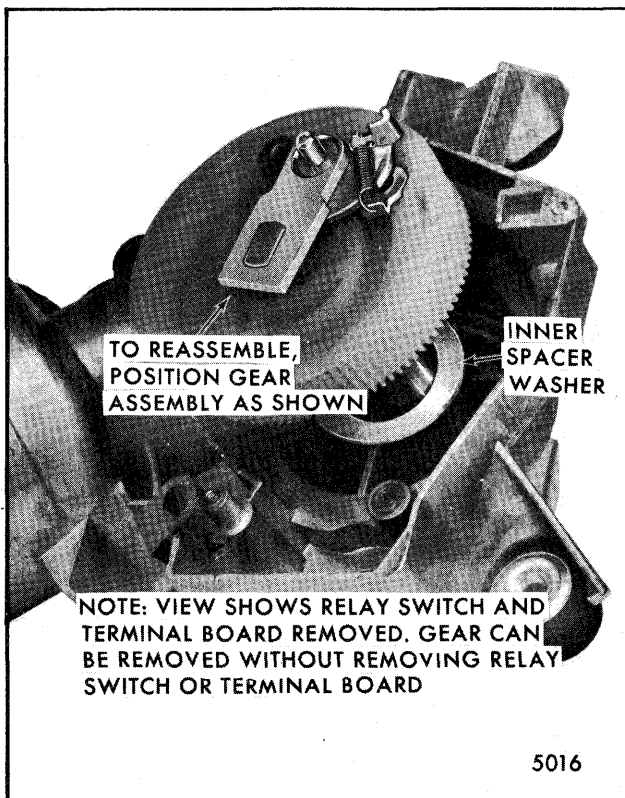


Fig. 2-43-Removing Gear

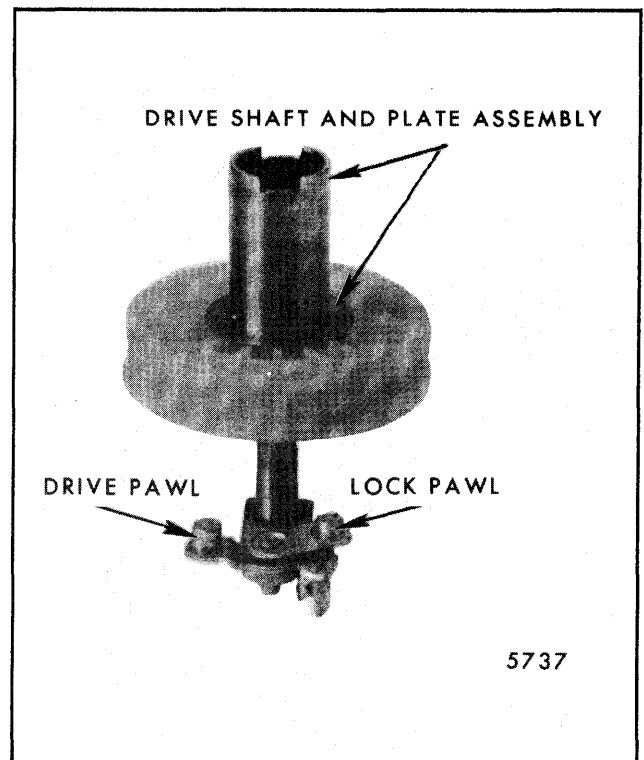


Fig. 2-44-Gear Removed

2. The end case and field assembly is serviced as a unit. To free the field and case assembly, cut the solid black and black with pink stripe leads in a location convenient for splicing.
3. Remove felt lubricating washer, steel thrust plate and rubber disc from case bearing.

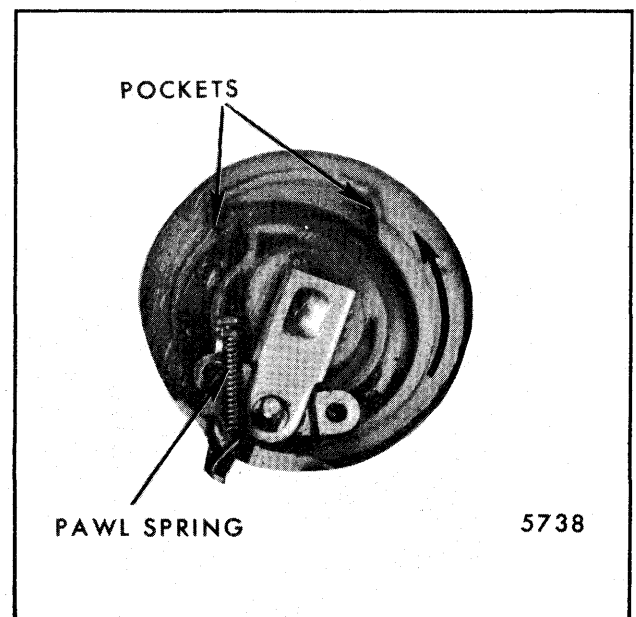


Fig. 2-45-Drive and Lock Pawl Guide Pin Pockets

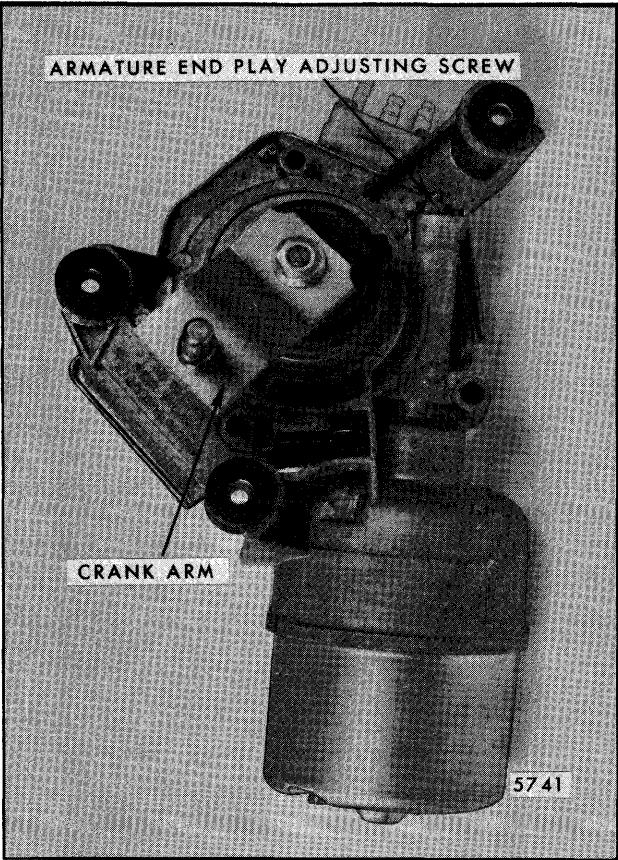


Fig. 2-46-Crank Arm in Park Position

Motor Reassembly

- 1. If new field and case assembly is being installed, splice the black and black with pink stripe leads of the new field with the corresponding leads to the wiper.
- 2. Install the rubber thrust disc, steel thrust disc and felt lubricating washer in the case assembly bearing in the order indicated.



Fig. 2-47-Motor Case Alignment Marks

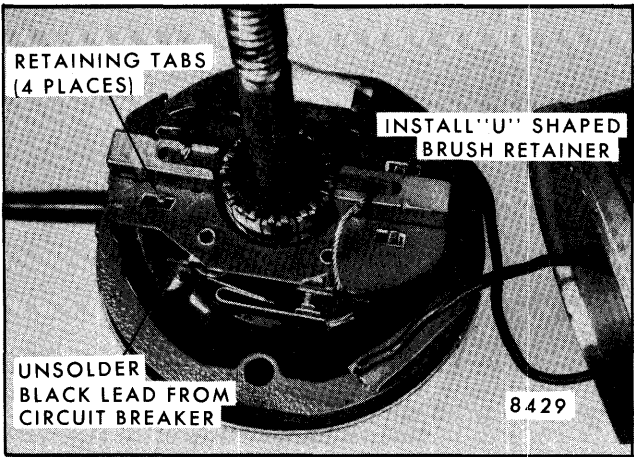


Fig. 2-48-Brushes and Brush Plate

- 3. Lubricate end of armature shaft that fits in case bearing with recommended type grease (Fig. 2-49). Next, install thrust ball in end of shaft.
- 4. Assemble armature in the case and field assembly.

SPECIFICATION CHART		
Operating Voltage	12 Volts D.C.	
Bench Check (No Load)	Current Draw (AMPS)	Crankarm Speed
"Lo" Speed	6.0 Max.	35-50
"Hi" Speed	4.5 Max.	70-90
Stall (Cold Motor)		
"Lo" Speed ..	29.0 Max.	0
Torque	Inch Pounds	
Washer Pump Mounting Screws	18	
Armature Adjusting Screw Jam Nut	50	
Motor Tie Bolts	30	
Gear Box Relay Attaching Screw	30	
Motor Crankarm Attaching Nut		
5/16 x 24 Thread	300-350	
Motor Crankarm to Transmission Drive Link	25-35	
Motor to Body Attaching Bolts	30-45	
Transmission to Body Attaching Bolts	48-72	
Lubrication		
Gear Teeth	Multifak EP-1 or Equivalent	8724
Gear Shaft		
Gear Camtrack		
Seal Cap (Inside)		
Armature Shaft		
Armature Worm		

Fig. 2-49-Specification Chart - Modified Pulse Wiper

5. Position the partially assembled brush plate over the armature shaft far enough to allow reassembly of the remaining brush in its brush holder; then, position the brush plate assembly on the mounting tabs in the position shown in Figure 2-48.
6. Center the brush plate mounting holes over the mounting tabs and bend the tabs toward the brush holders as required to secure the brush plate in position. Be careful not to bend or distort the metal brush holders.

NOTE: Be sure tabs are centered in brush plate mounting holes.

7. Remove brush retainer clips and resolder circuit breaker ground lead to circuit breaker.
8. If new case and field assembly is used, scribe a line on it in the same location as the one scribed on the old case. This will insure proper alignment of the new case with the scribed line made on the housing.
9. Position armature worm shaft inside the housing and, using the scribed reference marks, line up as near as possible the case and field assembly with the housing.
10. Maintaining the armature in its assembled position, start the armature shaft through the housing bearing until it starts to mesh with drive gear teeth. At the same time carefully pull the excess lead lengths through the casting grommet.

NOTE: If necessary, rotate the armature slightly so that the armature worm will engage with drive gear teeth.

11. Rotate case as required to align the bolt holes in the end case with those in the housing.
12. Secure the case to the housing with the two tie bolts. Adjust armature end play as required.

WIPER MOTOR AND PUMP ASSEMBLY

Removal and Installation (Fig. 2-50)

1. Raise hood and remove front cowl panel and screen.
2. Reaching through cowl air intake opening, loosen transmission drive link to crank arm attaching nuts.
3. Remove transmission drive link(s) from motor crank arm.

4. Disconnect wiring and washer hoses.
5. Remove three motor attaching screws.
6. Remove motor while guiding crank arm through hole.
7. To install, reverse removal procedure. Motor must be in "park" position when assembling crank arm to transmission drive link(s). Adjust wiper arms as required (Refer to wiper arm adjustment).

WIPER ARM

Removal and Installation

1. Raise hood and remove cowl panel to gain access to wiper arms.
2. Raise wiper arm and slide latch clip (Fig. 2-51) out from under wiper arm, then lift arm assembly off transmission shaft.
3. To install left wiper arm assembly, align keyway in wiper arm to transmission shaft and install.
4. Align the right wiper arm assembly in the proper park position and install (refer to wiper arm adjustment).
5. Lift the wiper arm assemblies and slide latch clips under the arms. Release wiper arms and check wipe pattern and "park" position.

WIPER BLADE

Adjustment

1. Raise hood and remove front cowl panel and vent screen.
2. Remove the right arm and blade assembly.
3. Loosen, do not remove, the transmission drive link to motor crank arm attaching nuts.
4. Rotate the left arm assembly to a position 1" below the blade stop.

CAUTION: To prevent damage to washer nozzles, temporarily remove retaining screws, and move nozzles out of the way.

5. Tighten attaching nuts on the transmission drive links to motor crank arm (25-35 inch pounds torque).
6. Position the right arm and blade assembly 1"

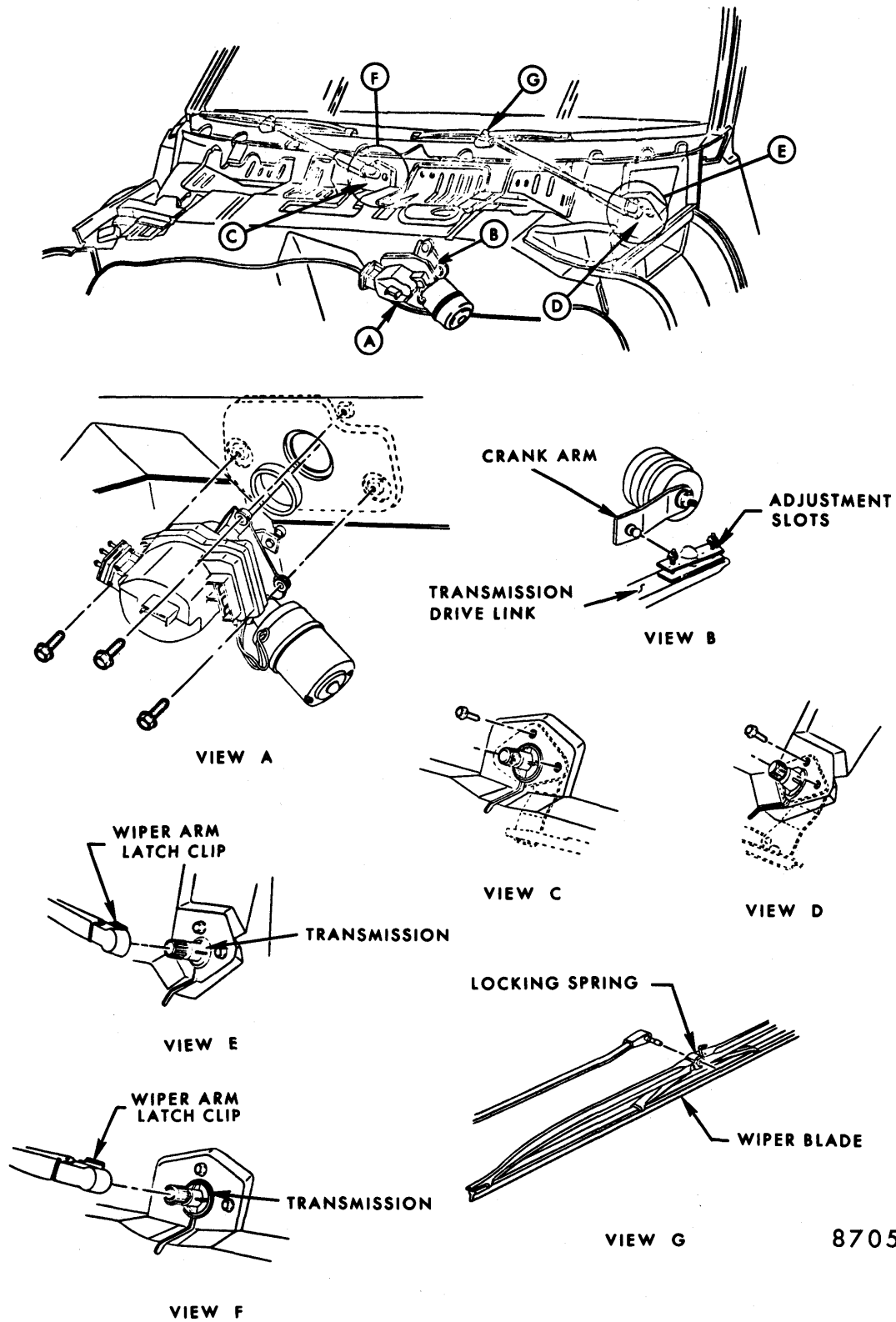


Fig. 2-50-Motor and Wiper Installation

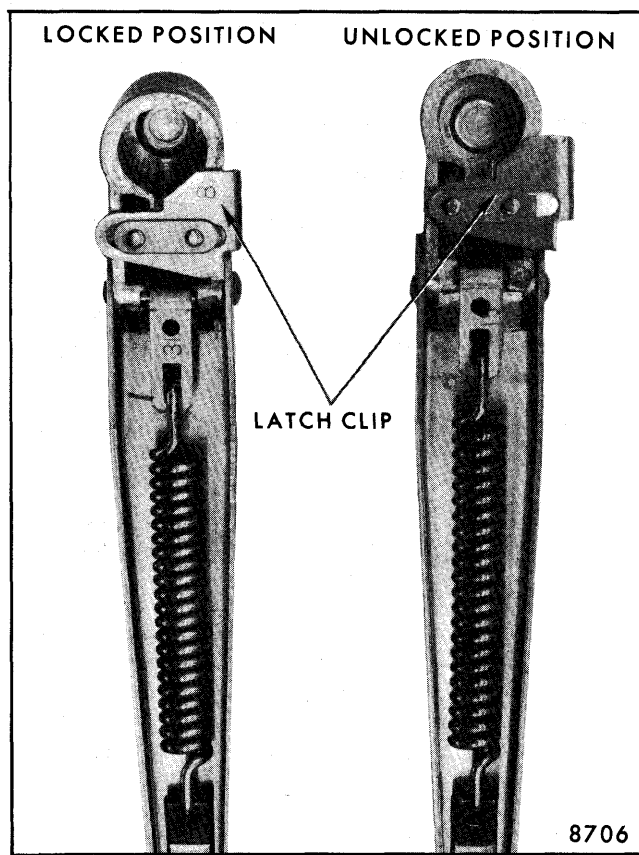


Fig. 2-51-Wiper Arm Latch Clips

below the blade stop and install arm assembly to transmission shaft.

7. Lift the left and right arm blade assemblies over the stops.
8. Check wire pattern and park position. Refer to Figure 2-52 for outwiper dimension.

NOTE: The correct park position and outwiper dimension is determined with the wipers operating at "LO" speed on a wet glass.

9. Replace washer nozzles.
10. Install front cowl panel and vent screen.

Removal and Installation

1. The wiper blades are retained by a coil spring retainer (Fig. 2-53). A screwdriver or similar tool must be inserted on top of the spring and the spring pushed downward. The blade assembly can then be slid off the wiper arm pin.
2. The wiper blade element is retained by a clip in the end of the blade element. When the retainer clip is squeezed together, the blade element can be slid out of the blade assembly (Fig. 2-53).

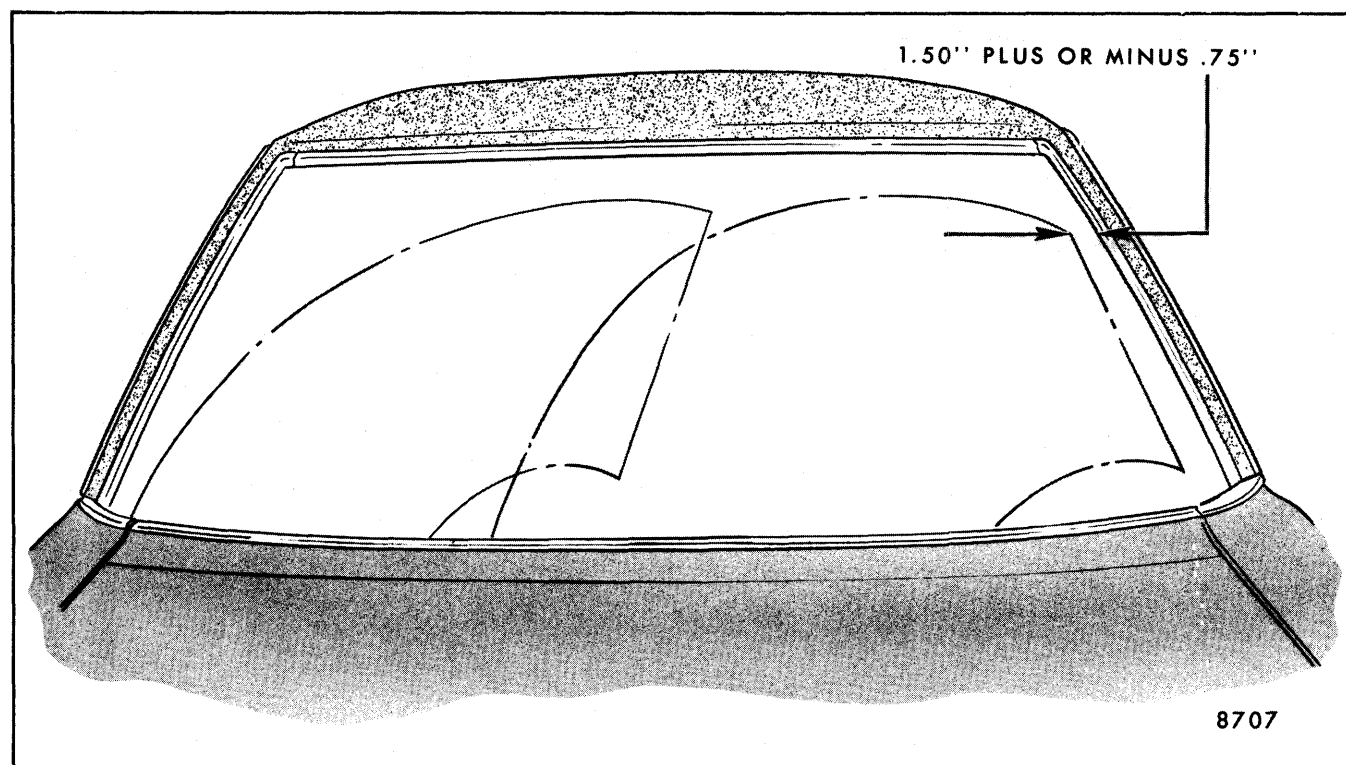


Fig. 2-52-Wipe Pattern

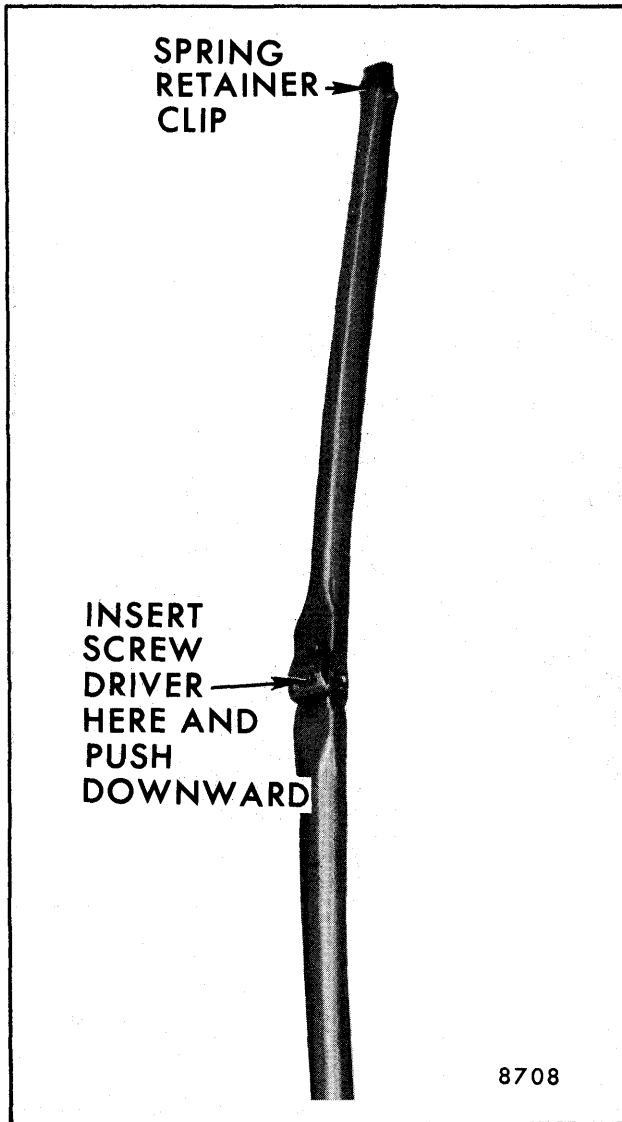


Fig. 2-53-Wiper Blade Assembly

When installing a blade element into a blade assembly, be certain to engage the metal insert of the element into all retaining tabs of the blade assembly.

NOTE: When properly installed, the spring type element retaining clip should be at the end of the

wiper blade assembly nearest the wiper transmission.

WIPER TRANSMISSION

Removal and Installation

1. Raise hood and remove cowl panel and vent screen.
2. Loosen (do not remove) attaching nuts securing transmission drive link(s) to motor crank arm (Fig. 2-50, View B).
3. Disconnect the transmission drive link(s) from the motor crank arm.
4. Remove transmission(s) and linkage assembly by guiding it through plenum chamber opening.
5. To install transmission(s) and linkage assemblies, position assembly in plenum chamber through the openings.
6. Loosely install transmission to body attaching screws.
7. Loosely install transmission drive link(s) to motor crank arm.

NOTE: Wiper motor must be in park position.

8. Align transmission(s) and tighten attaching screws to body.
9. Tighten transmission drive link to motor crank arm nuts (25-35 inch lbs.).
10. Install wiper arm and blade assemblies and adjust as described under **WIPER ARM ADJUSTMENT**.
11. Check wiper operation, wipe pattern and park position.
12. Install cowl vent screen and panel.
13. Check washer nozzle alignment.

MODIFIED PULSE WASHER SYSTEM

WIPER SWITCH POSITION			
Lo	Med	Hi	Delay
Wiper runs and washes in Lo Speed	Wiper runs and washes in medium Speed	Wiper runs and washes in Hi Speed	Delay operation is overridden, wiper runs and washes in continuous LO speed; completes programmed wash cycle plus four drying wipes and then automatically reverts back to pulse operation.
		5369	

Fig. 2-54-Washer Operation in Various Switch Positions

DESCRIPTION

The washer pump used on the pulse motor system is a positive displacement type pump employing a small piston, spring and valve arrangement. The programming (starting and completion of wash cycle) is accomplished electrically and mechanically by a relay assembly and ratchet wheel arrangement.

The modified pulse windshield system is referred to as a programmed system and functions as follows:

Momentarily depressing the dash control wash button when the dash switch is in the "OFF" position starts a wash cycle. The wash cycle consists of eight "squirts" of solution, four drying wipes, then automatically parks the blades and shuts the system OFF. If the dash switch is in any position other than OFF, the washer system functions as shown in Figure 2-54.

NOTE: The dash switch wash button on the pulse wiper system functions differently from that used with the standard system. It does NOT mechanically move the wiper switch to the "ON" position when depressed. The turning "ON" of the wiper motor is accomplished electrically and will be covered in the "Washer Pump Operation" section.

Washer Pump

The washer pump used on the pulse wiper differs considerably from the pump used on a standard wiper. Referring to Figure 2-55 note the following components NOT found on a standard pump: (1) Pulse Relay, (2) Override Switch, (3) Holding Switch, (4) Solid State Electronic Device and (5) a special Drive Cam (Fig. 2-56). These special components serve the following functions.

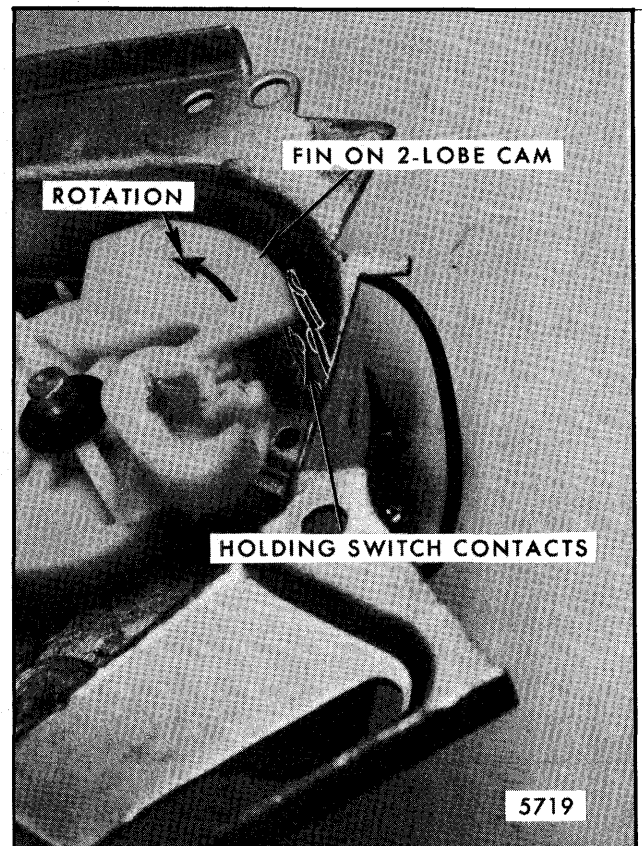


Fig. 2-54A-Holding Switch Contacts

1. Pulse Relay - Acts as a switch to complete B plus feed to the wiper motor windings.
2. Override Switch - Used during washer pump operation to provide alternate or auxiliary circuits. The switch is actuated by a projection on the rim of the ratchet gear. Detailed explanation of the switch operation is covered in "Operating Principles".
3. Holding Switch - Used in conjunction with the timing device to control the delay mode of operation. This switch is actuated by a fin on the washer pump drive cam (refer to Fig. 2-54A).
4. Timing Device - Consists of a transistor, capacitor, two diodes and a resistor mounted on an insulating board.
5. Drive Cam - Drives the pump mechanism and also actuates the holding switch.

Washer Pump Electrical Circuits and Operation

To start a wash cycle of operation requires three relay circuits. Referring to Figure 2-57, note that the

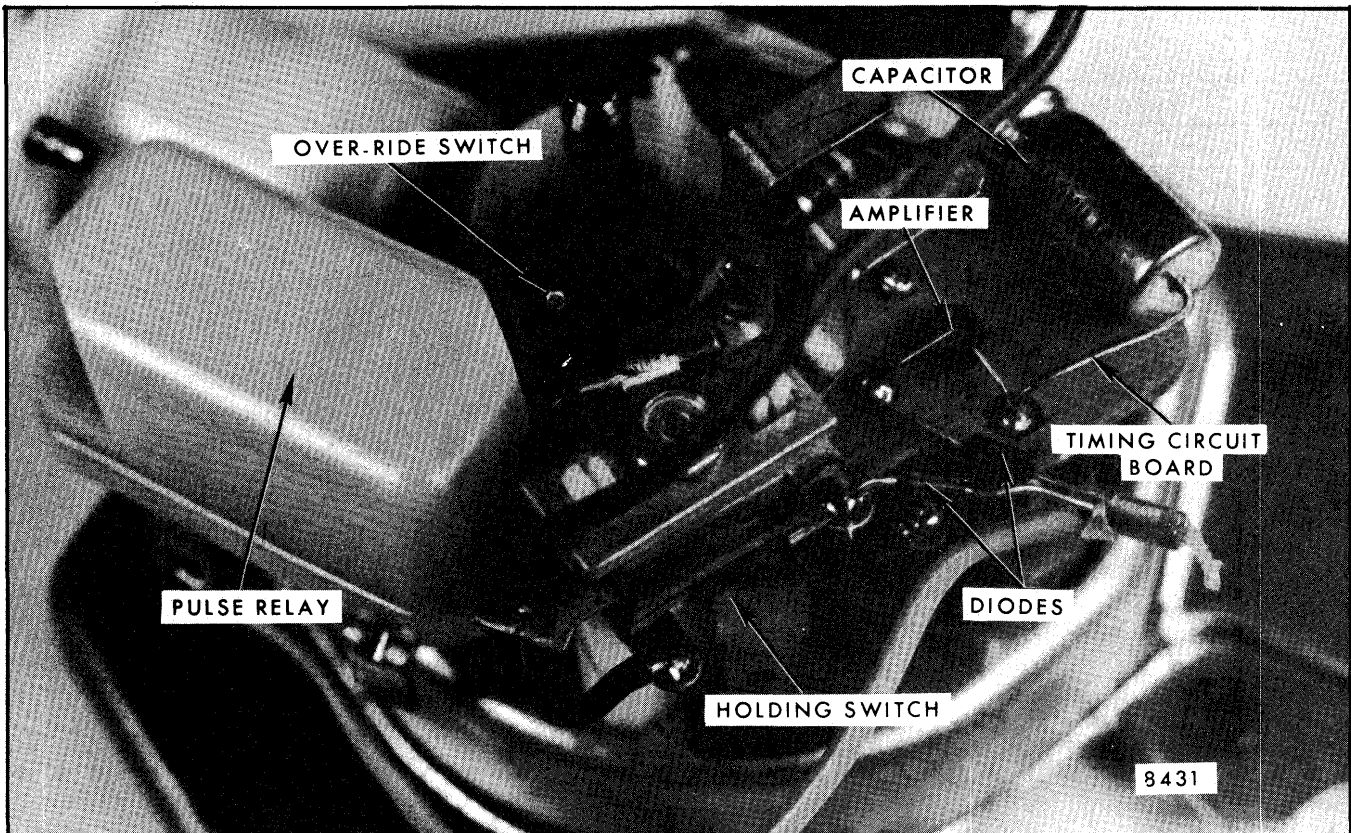


Fig. 2-55-Modified Pulse Washer Pump Timing Circuit

gearbox relay, pulse relay and washer pump ratchet relay coil circuits are completed to ground simultaneously when the dash switch wash button is depressed.

Depending on the position of the dash switch - OFF, LO, MED, HI or DELAY - three main variations of circuitry can develop when the wash button is depressed to start a wash cycle.

Dash Switch In "OFF" Position - "Wash Button Depressed" (Ignition Switch On)

The wash button temporarily completes the gearbox relay coil circuit to ground. This causes the relay switch contacts to close completing B plus to the motor windings and the pulse relay coil.

The pulse relay coil is connected to ground at the dash switch in the "OFF" position and when the gearbox relay completes the B plus circuit, the pulse relay coil circuit is simultaneously completed. The pulse relay switch contacts then close, completing the B plus feed circuit to the motor, starting the motor.

The washer pump ratchet relay coil circuit is simultaneously completed to ground by the wash button.

With this relay energized, the pump is unlocked from its idling or lock-out position starting a wash cycle. As soon as the wash cycle starts, the ratchet gear starts to rotate which permits the override contacts to close (Fig. 2-58). The closed override switch provides an alternate path to ground for the gearbox relay when the wash button is released (Fig. 2-59).

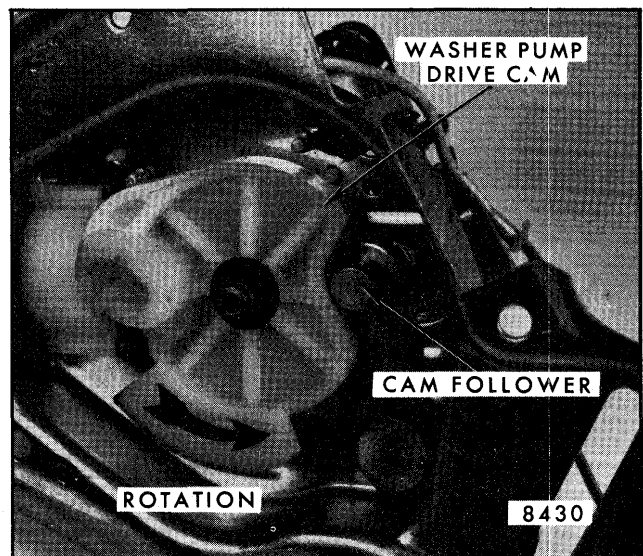


Fig. 2-56-Washer Pump Cam Rotation

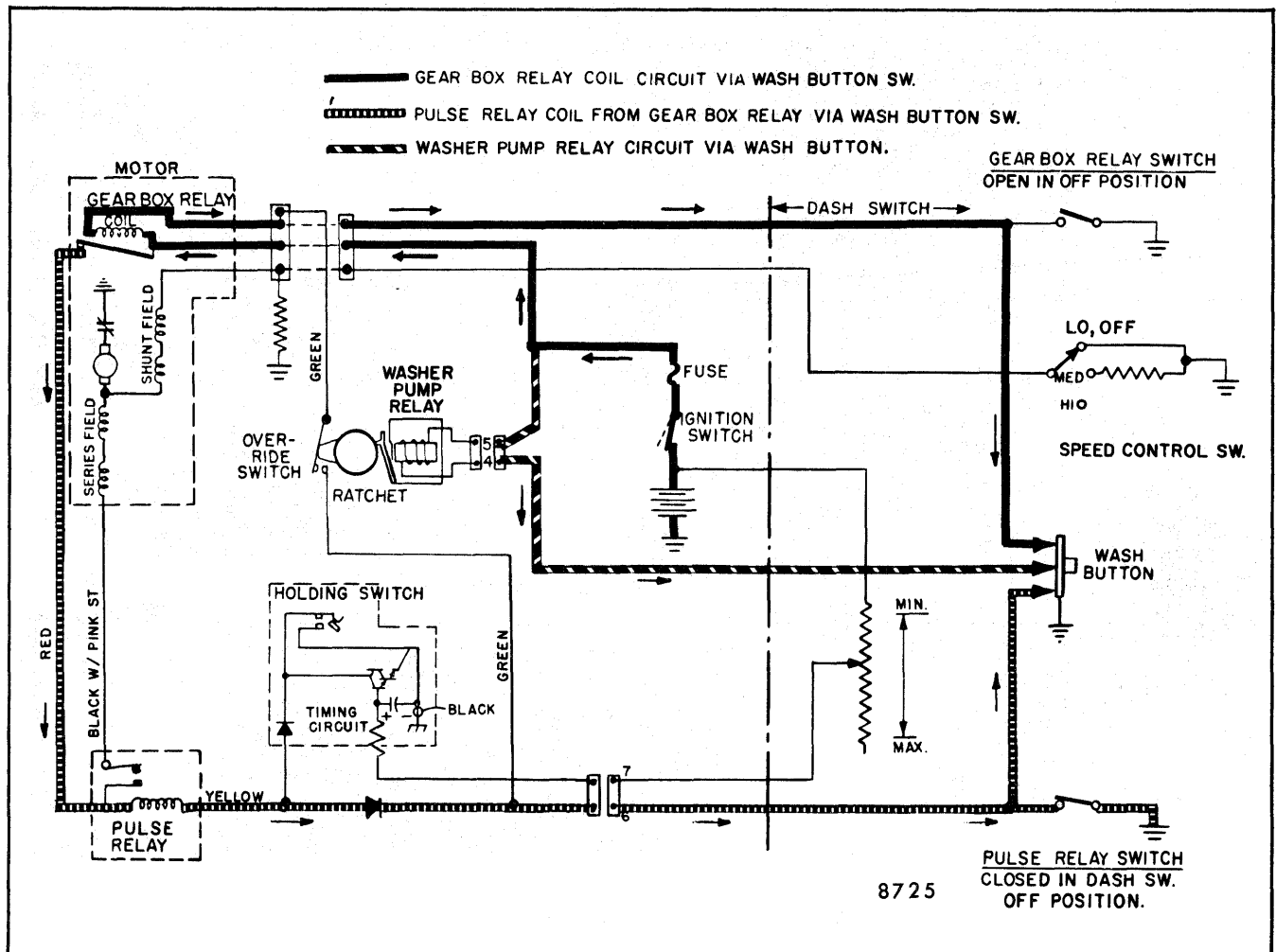


Fig. 2-57-Start of Wash Cycle - Wash Button Pushed "In"

This alternate circuit is required to prevent the wiper motor from shutting off when the wash button is released.

When the ratchet gear has been rotated 360 degrees (12 teeth), the projection on the rim of the ratchet opens the override switch contacts (Fig. 2-59) which opens the gearbox relay coil circuit. Opening the gearbox relay coil circuit causes the wiper to shut off as described under "Motor Operation".

Dash Switch In LO, MED or HI - "Wash Button Depressed" (Ignition Switch On)

Whenever the wiper motor is operating in any of the continuous speed modes - LO, MED, HI and the wash button is depressed to start a wash cycle, the wiper will wash and wipe at that speed.

Since the wiper is running, the pulse and gearbox relay circuits are already complete. Thus, depressing the wash button actually completes only the washer

pump ratchet relay coil to ground to start the pumping action. At the completion of the wash cycle the motor continues to run at the speed at which the dash switch is positioned.

Dash Switch In "DELAY" Position - "Wash Button Depressed" (Ignition Switch On)

Depressing the wash button to start the wash cycle overrides the delay mode and provides continuous wiper operation in "LO" speed during the wash cycle. At completion of the wash cycle, the wiper motor automatically reverts back to the "DELAY" mode of operation.

The above operation is accomplished as follows:

When the dash switch is in the "DELAY" position, the gearbox relay coil circuit is complete. This, in turn, completes the B plus circuit to the pulse relay. However, the pulse relay coil circuit is completed during pulse operation.

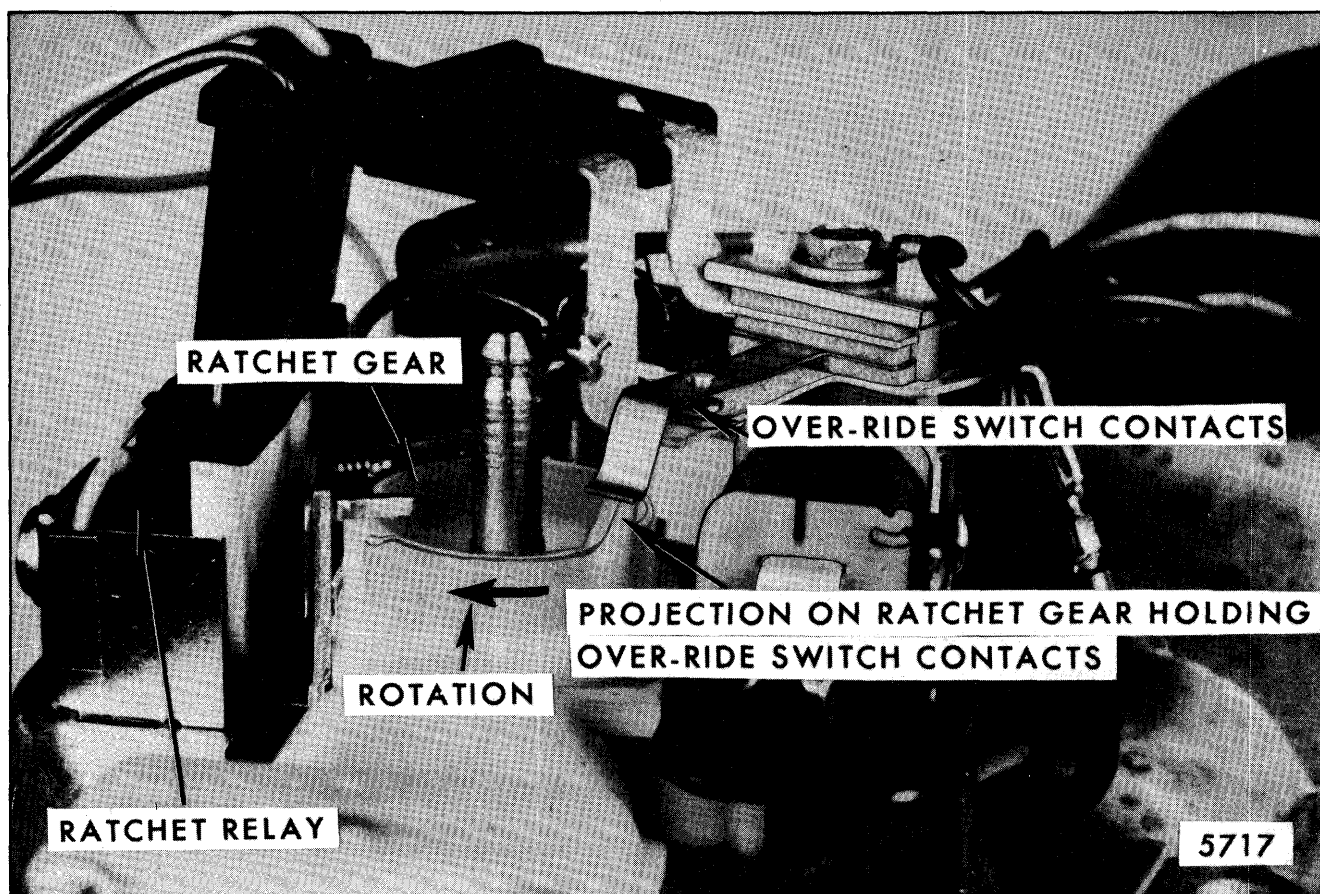


Fig. 2-58-Pump Programming Mechanism

In order to override the delay mode and provide continuous "LO" speed operation during the wash cycle, a by-pass circuit around the timing device is accomplished as follows:

Momentarily depressing the wash button completes the pulse relay coil and washer pump ratchet relay coil circuits to ground. This causes the wiper motor and pump to start immediately regardless of the delay mode time setting.

As soon as the wiper starts, the pump also starts, which causes the override switch contacts to close. This provides a by-pass circuit to ground for the pulse relay as shown in Figure 2-60.

At completion of the wash cycle, the projection on the rim of the ratchet gear opens the override switch contacts which, in turn, opens the pulse relay by-pass circuit, and the wiper motor reverts to the pulse or delay mode of operation.

Washer Pump Mechanical Operation

The pump mechanism used on the pulse wiper

washer pump is very similar to that used on the standard depressed park wiper washer system.

The basic pump mechanism consists of a spring-loaded piston assembly enclosed in a plastic cylinder. Attached to the piston and extending out of the cylinder housing is an actuator plate. A valve assembly consisting of two exhaust valves and one intake valve is attached to the opposite end of the cylinder housing and controls the flow of washer solution (Fig. 2-61).

NOTE: Figures 2-61 and 2-62 show the pump with most of the programming parts removed for illustrative purposes.

Referring to Figure 2-61 note that the elongated slot of the piston actuator plate fits over a pin. This pin is a part of a cam-follower assembly which is actuated by a drive cam located on the underside of the pump mounting plate (Fig. 2-56). When the wiper is running, the drive gear rotates the drive cam which, in turn, causes the cam-follower to move back and forth.

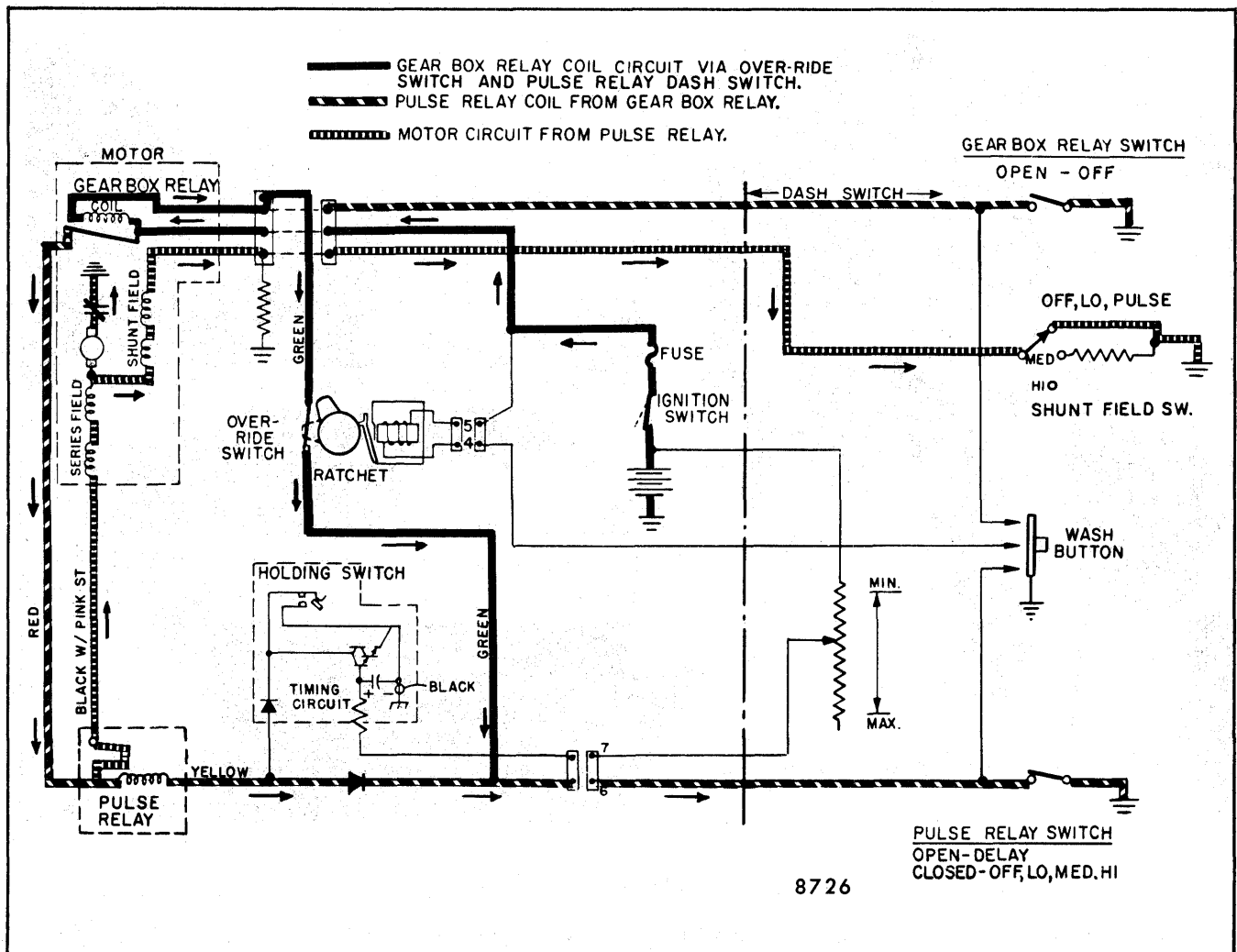


Fig. 2-59-Gearbox Relay Holding Circuit Dash Switch Released - Motor Operation Maintained

Note that a tang on the piston actuator plate is resting against a ramp on the lower surface of the ratchet gear (Fig. 2-61). This holds the piston actuator plate in a lock out position as long as the RATCHET GEAR IS NOT ROTATED.

With the piston actuator plate in the lock out position and the wiper running, the cam-follower pin merely moves back and forth in the elongated slot of the piston actuator plate and no pumping action can occur.

Actuating the washer button to obtain windshield washer pump operation starts the wiper motor and energizes the pump relay. With the relay energized, the relay armature is pulled toward the coil, allowing the ratchet pawl to drop out of the relay armature opening and engage the teeth of the ratchet wheel. Figure 2-62 shows the pawl extending through window of relay armature.

The ratchet pawl which is actuated by the same cam-follower pin that moves the piston actuator plate then begins to rotate the ratchet wheel. Rotating the ratchet wheel one tooth moves the ratchet wheel ramp away from the tang of the piston actuator plate (Fig. 2-61, permitting the piston spring to expand which, in turn, forces the piston toward the valve assembly, resulting in the first exhaust stroke (Fig. 2-64).

During the first exhaust stroke the expanded piston spring also pulls the piston actuator plate up tightly against the cam-follower pin. The continuing rotation of the drive cam will now cause the cam-follower pin to move the actuator plate and piston in a direction that will compress the piston spring, causing washer solution to be drawn into the piston housing via the intake valve. (Intake stroke, Fig. 2-64).

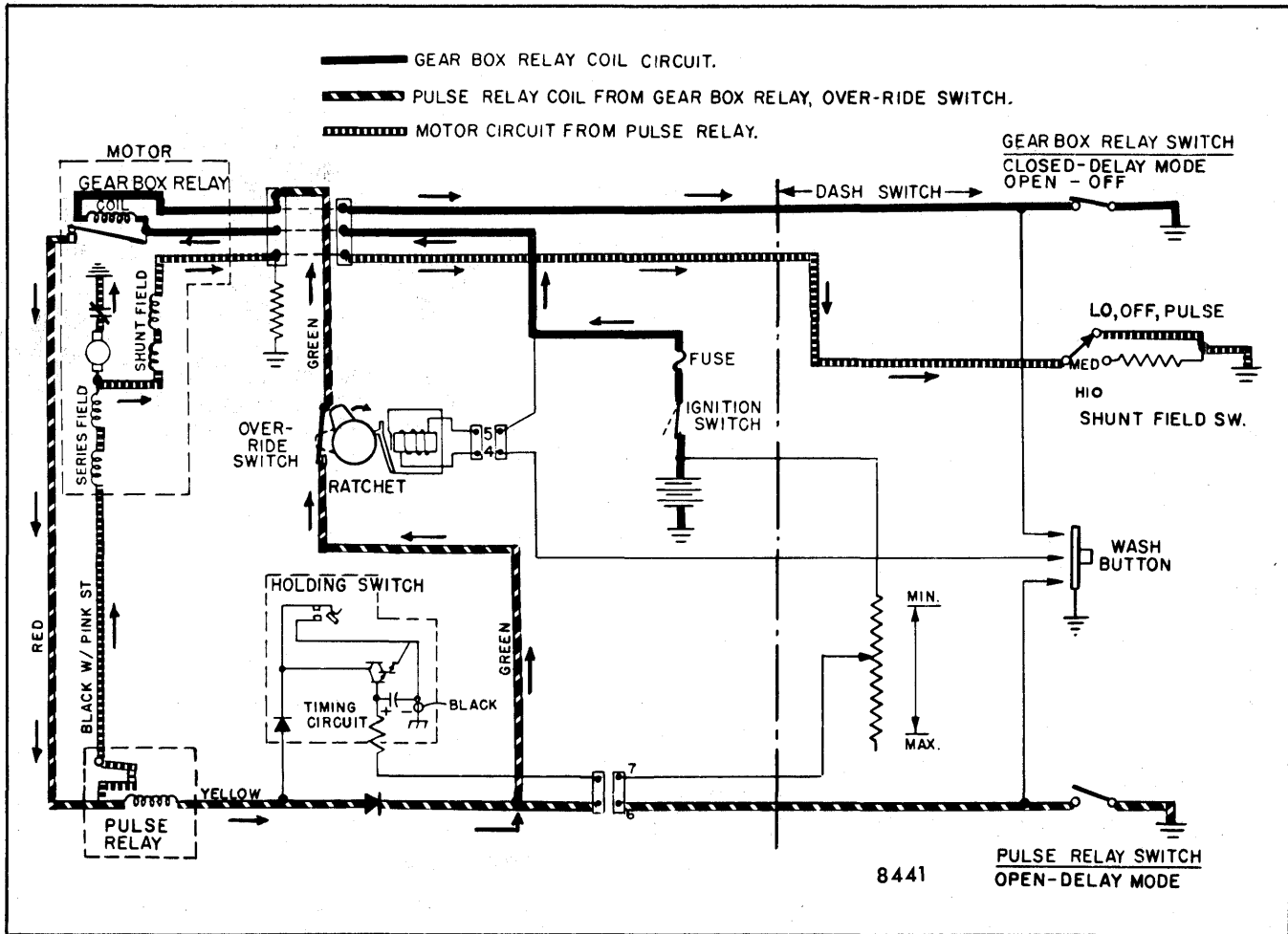


Fig. 2-60-Pulse Relay Circuit Via Override Switch By-Pass Time Delay Circuit - Continuous Wiper Operation During Wash Cycle

Two intake and two exhaust strokes occur for each revolution of the drive cam.

The pumping operation is terminated automatically when the ratchet wheel has rotated a full 360 degrees. This is accomplished as follows.

As the ratchet wheel approaches the completion of its 360 degrees travel, two functions occur simultaneously:

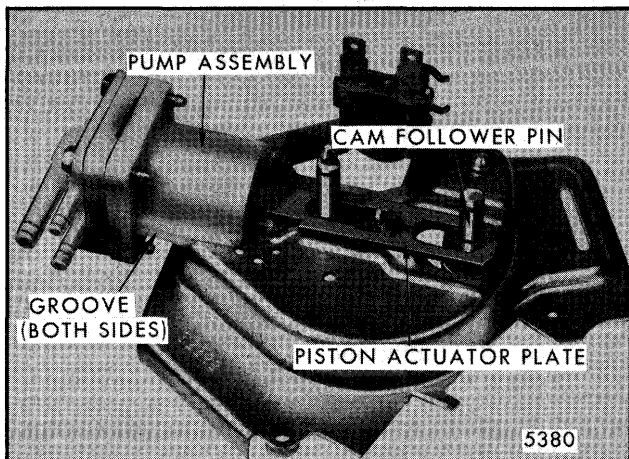


Fig. 2-61-Pump Intake Stroke

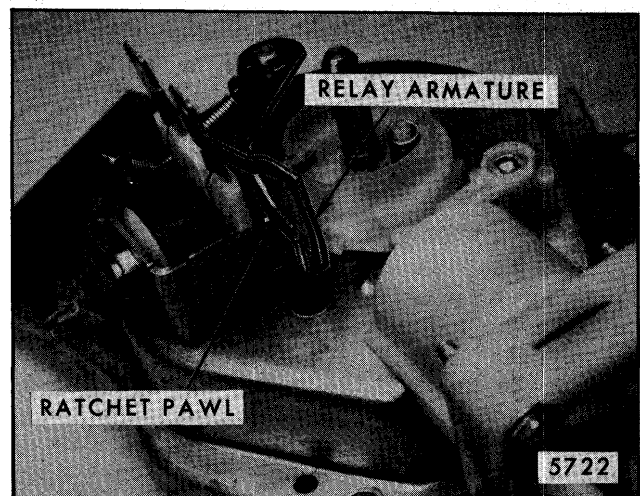


Fig. 2-62-Ratchet Pawl and Armature

1. A leg on the relay armature rides up a ramp located on the outer surface of the ratchet gear rim. When the leg reaches the top of the ramp, it moves over the top edge of the ratchet gear rim. This action allows the ratchet gear pawl to re-enter the armature opening, preventing further rotation of the ratchet gear until the next time the relay coil is energized from the washer button (refer to Figure 2-63 for position of armature leg while pump is idling).
2. The tang of the piston actuator plate is resting once more against the ramp on the lower side of the ratchet wheel (Fig. 2-62).

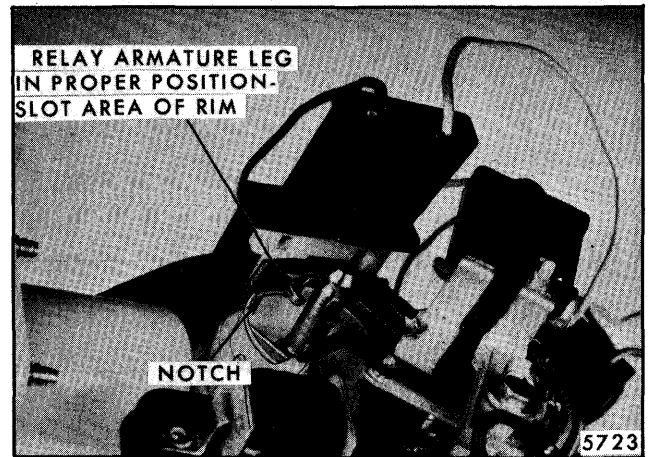


Fig. 2-63-Pump in Idling Position

DIAGNOSTIC PROCEDURES - MODIFIED PULSE WASHER SYSTEM

The following procedures cover that part of the washer system that is related to the pump mechanism when the motor is operating correctly.

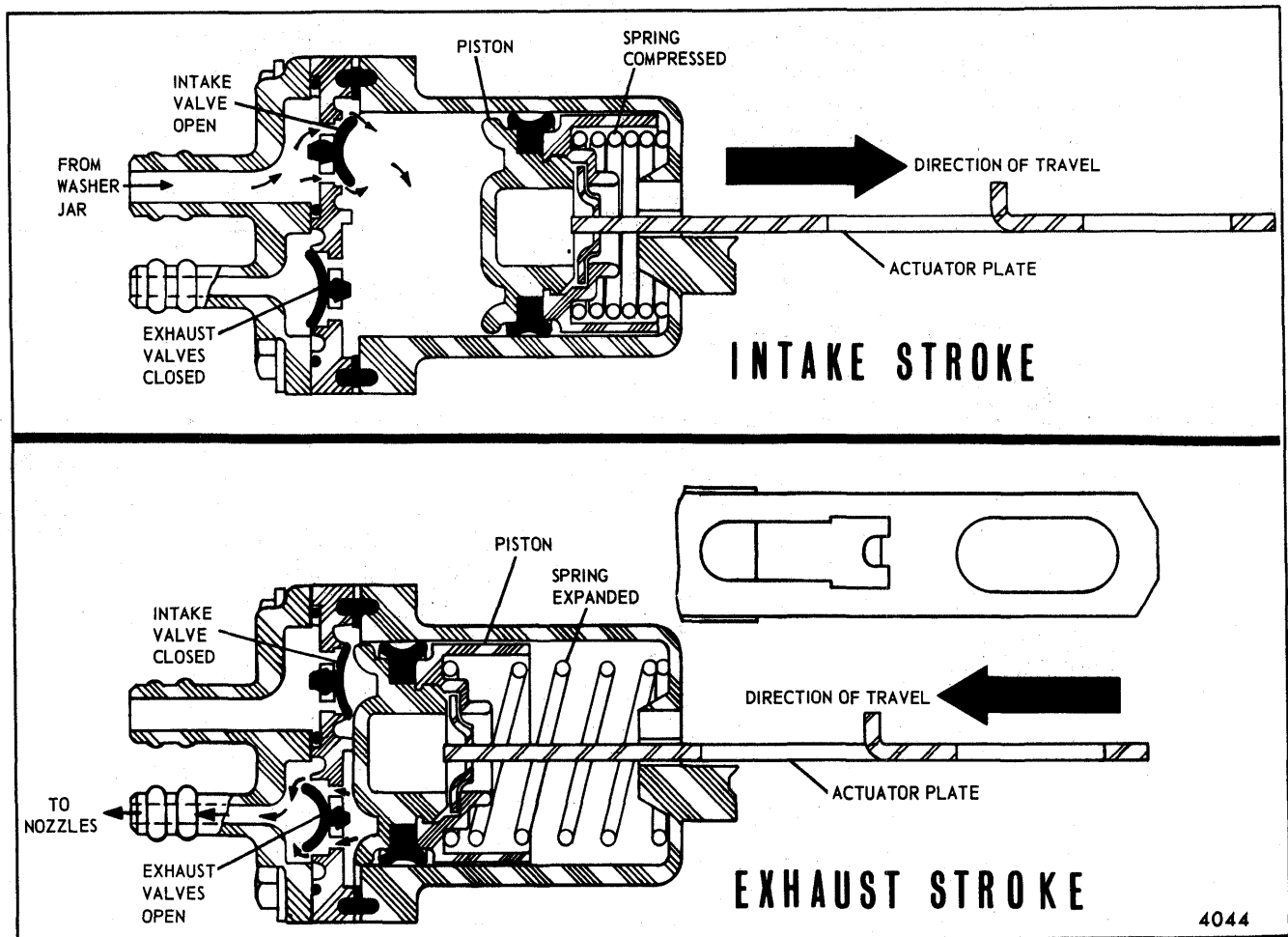


Fig. 2-64-Intake and Exhaust Stroke

DIAGNOSIS CHART
MODIFIED
PULSE WIPER SYSTEM

CONDITION	REFERENCE
1. Windshield washer system inoperative. (Wiper motor operates correctly).	Fig. 2-66 and 2-67
2. Washer Pump Noisy - makes loud "Klunking" type noise.	Fig. 2-68
3. Wiper shuts off before wash cycle is completed. (Blades start out of park position, pump delivers one "squirt", and blades return to park position).	Fig. 2-69

8727

Fig. 2-65-Modified Pulse Washer System - Diagnosis Chart Index

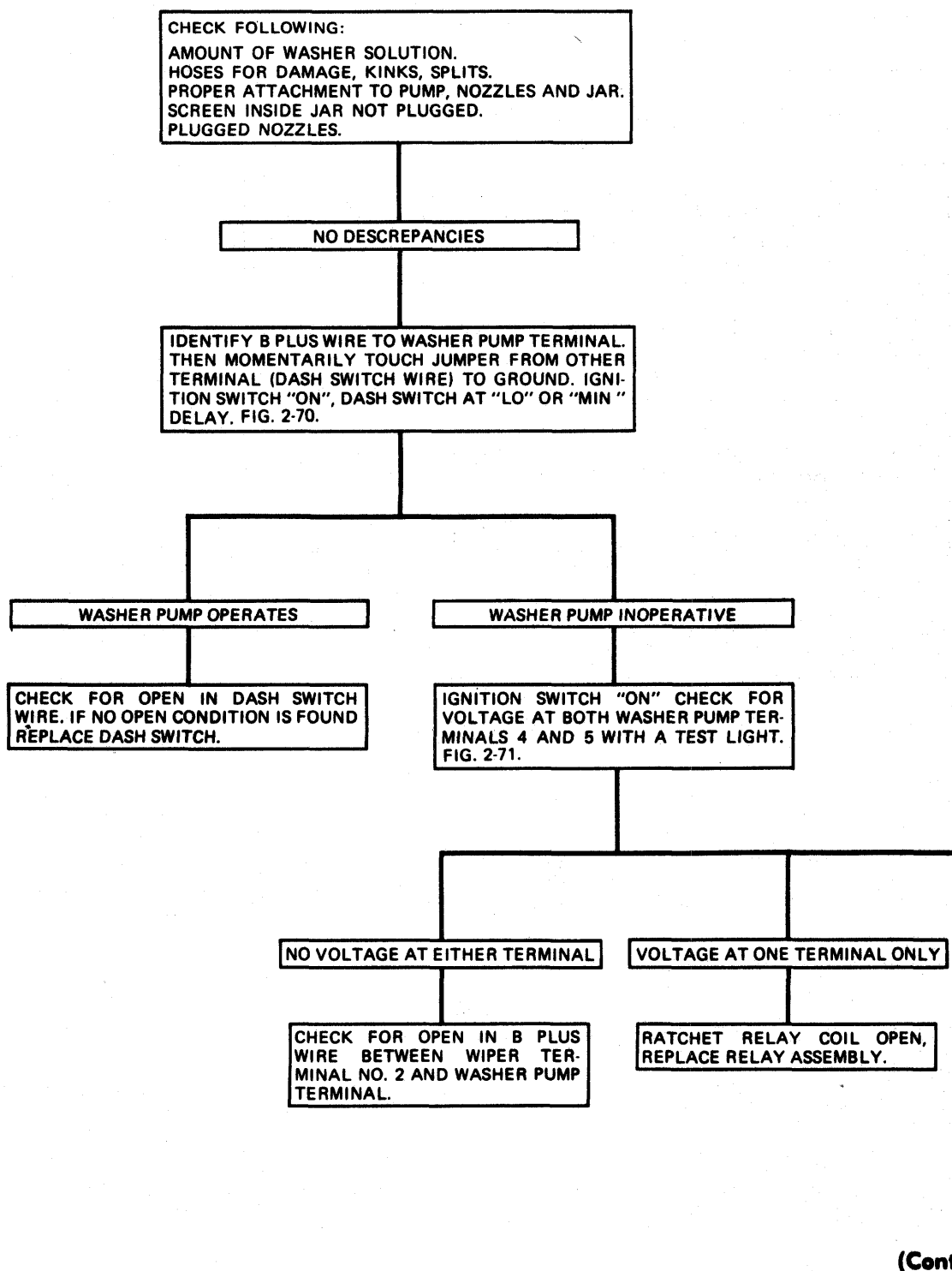
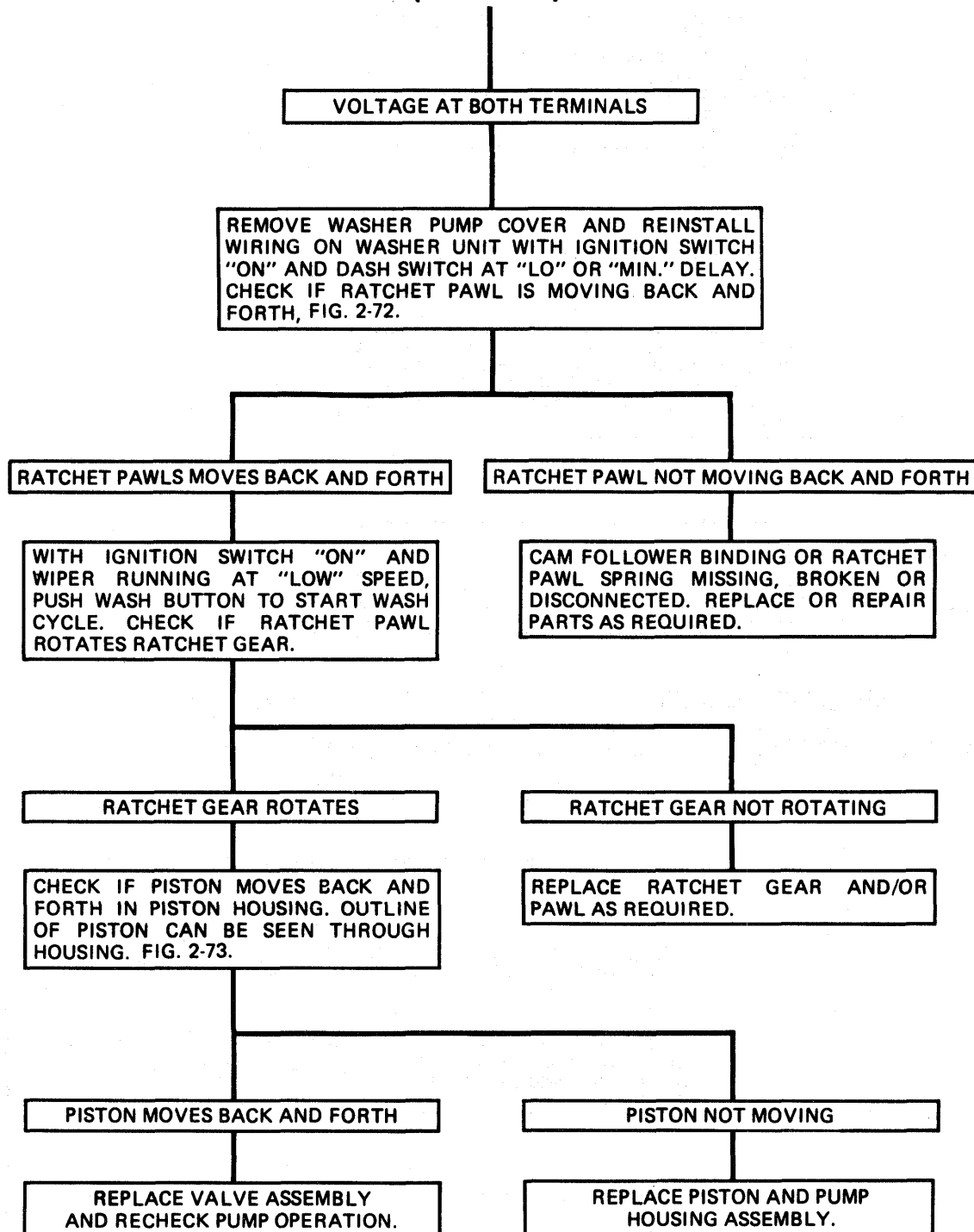
WINDSHIELD WASHER SYSTEM INOPERATIVE**(WIPER MOTOR OPERATES CORRECTLY)**

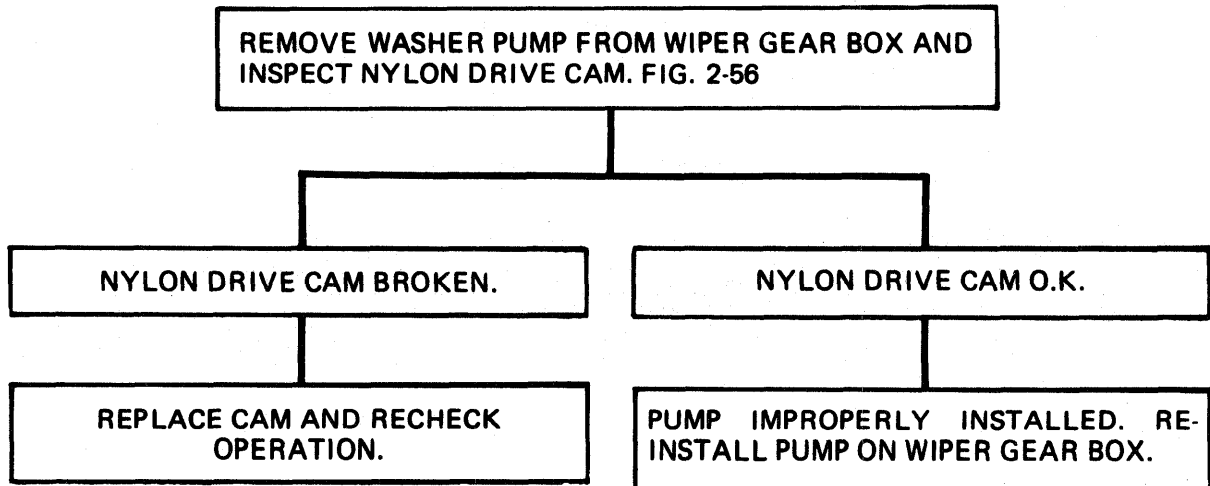
Fig. 2-66-Modified Pulse Washer System - Diagnosis Chart - Condition 1

WINDSHIELD WASHER SYSTEM INOPERATIVE**(WIPER MOTOR OPERATES CORRECTLY)****(Continued)**

8729

Fig. 2-67-Modified Pulse Washer System - Diagnosis Chart - Condition 1

WASHER PUMP NOISY (MAKES LOUD KLUNKING NOISE)

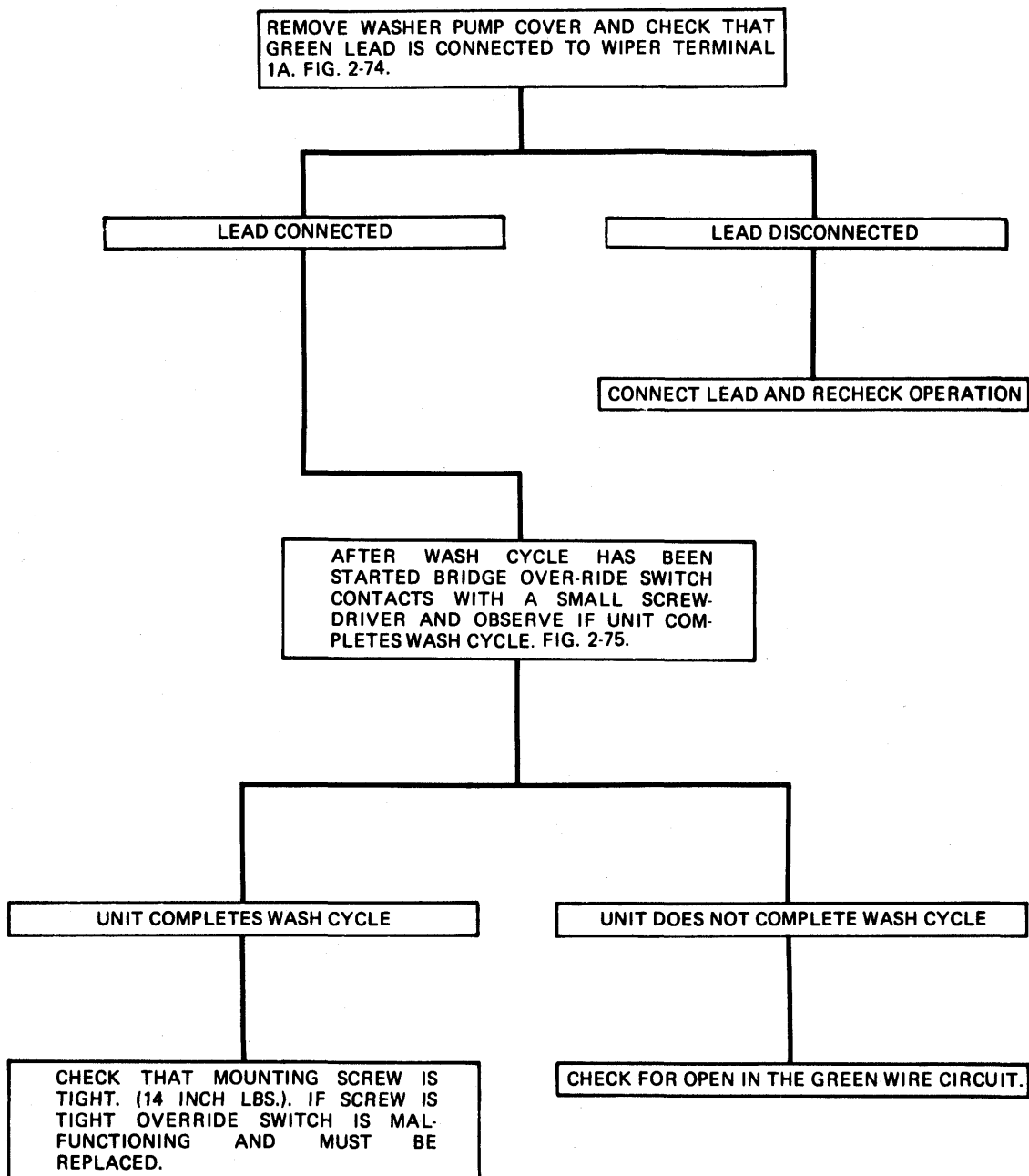


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Fig. 2-68-Modified Pulse Washer System - Diagnosis Chart - Condition 2

WIPER SHUTS "OFF" BEFORE WASH CYCLE IS COMPLETED

(BLADES START OUT OF PARK POSITION, PUMP MAKES ONE "SQUIRT"
AND BLADES RETURN TO PARK POSITION AND SHUT "OFF")



8731

Fig. 2-69-Modified Pulse Washer System - Diagnosis Chart - Condition 3

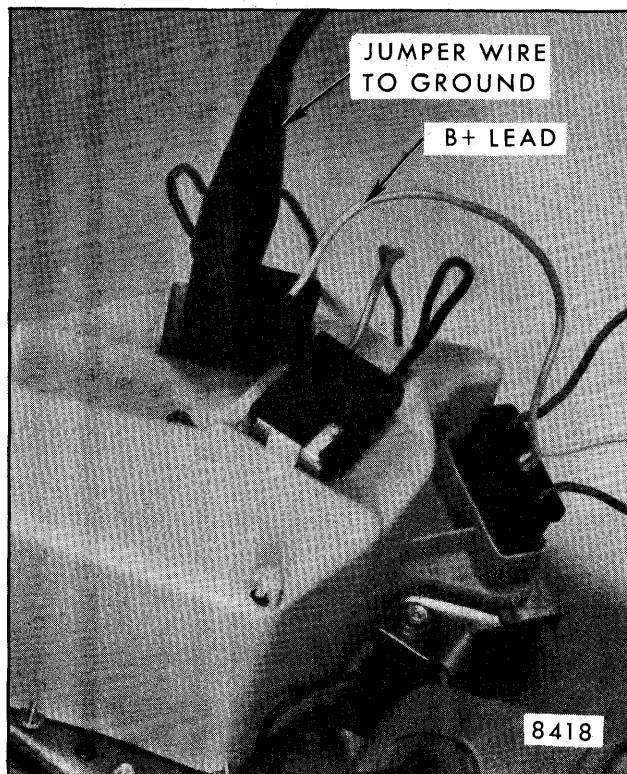


Fig. 2-70-Condition 1 - Washer System Inoperative

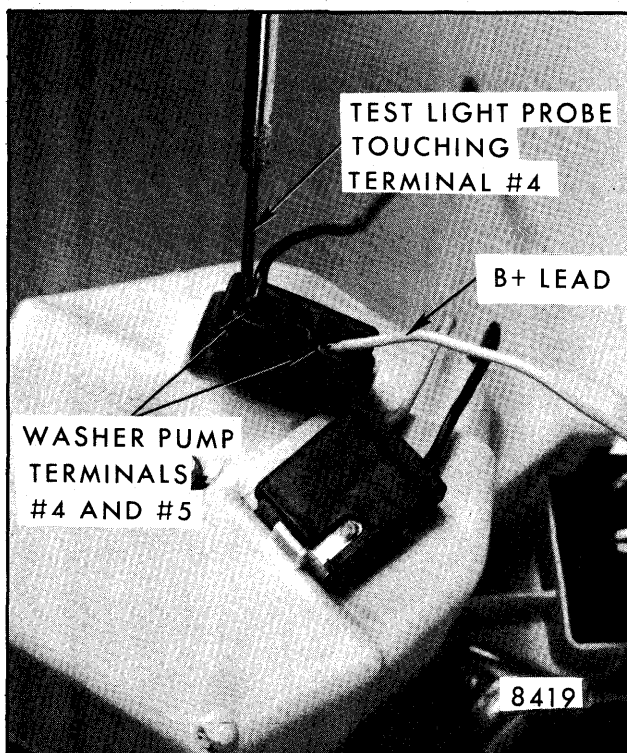


Fig. 2-71-Condition 1 - Washer System Inoperative

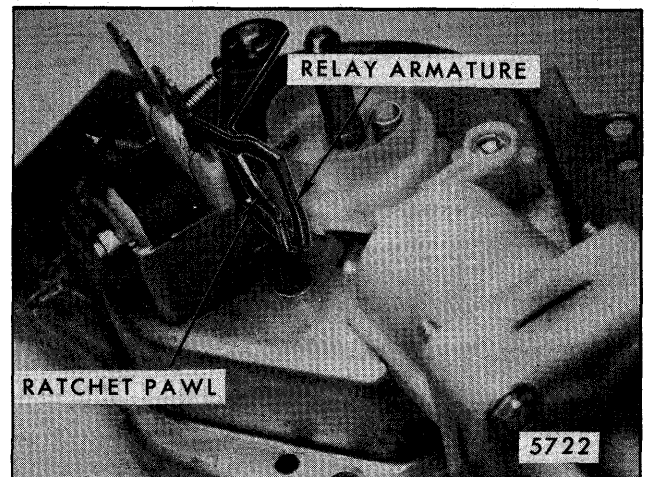


Fig. 2-72-Condition 1 - Washer System Inoperative

DISASSEMBLY - ASSEMBLY PROCEDURES

Washer Pump Removal

1. Remove complete wiper washer assembly from vehicle.
2. Remove plastic tab from terminal 6 and 7 opening and pull plastic cover off mounting post (Fig. 2-76).
3. Disconnect the green lead from terminal 1A, red and black with pink stripe leads from pulse relay terminals (Fig. 2-77).

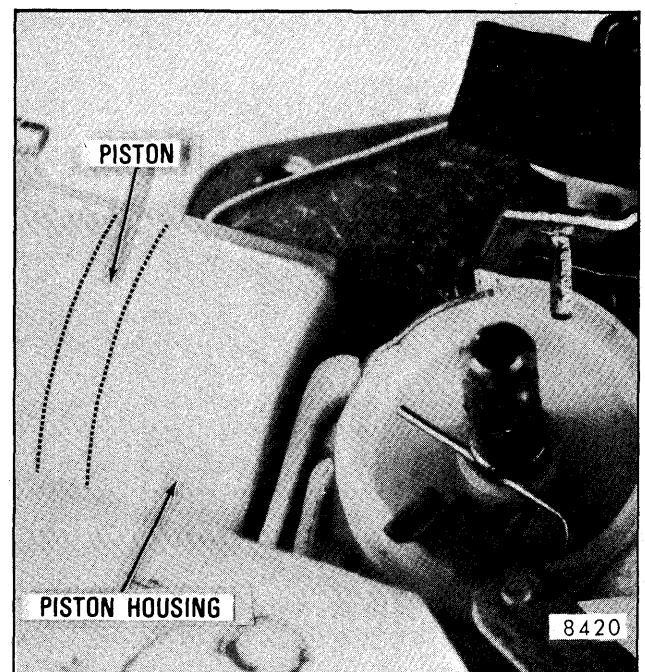


Fig. 2-73-Condition 1 - Washer System Inoperative

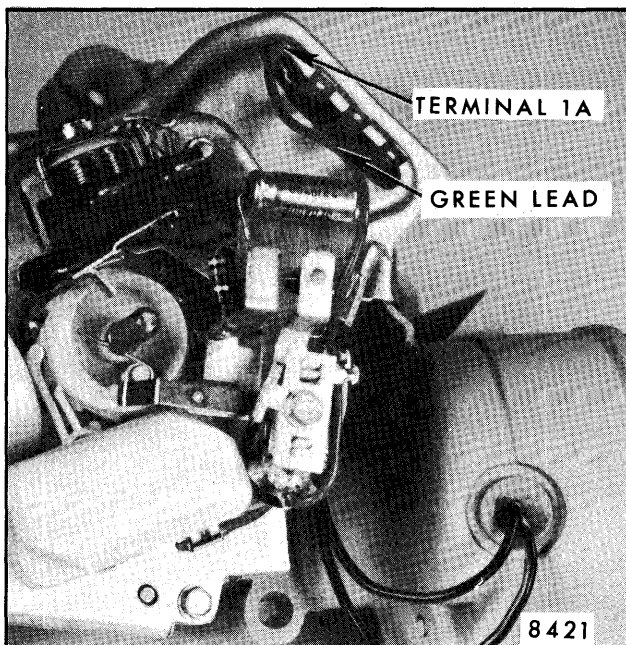


Fig. 2-74-Condition 3 - Wiper Shuts Off Before Wash Cycle is Completed

4. Remove the three screws that attach pump to gearbox.

Washer Pump Installation

NOTE: Gearbox mechanism must be in park position (Fig. 2-78).

1. Install locator pin in pump mechanism as shown in Figure 2-78.

NOTE: If necessary to rotate cam to install locator pin, be sure to rotate cam counterclockwise.

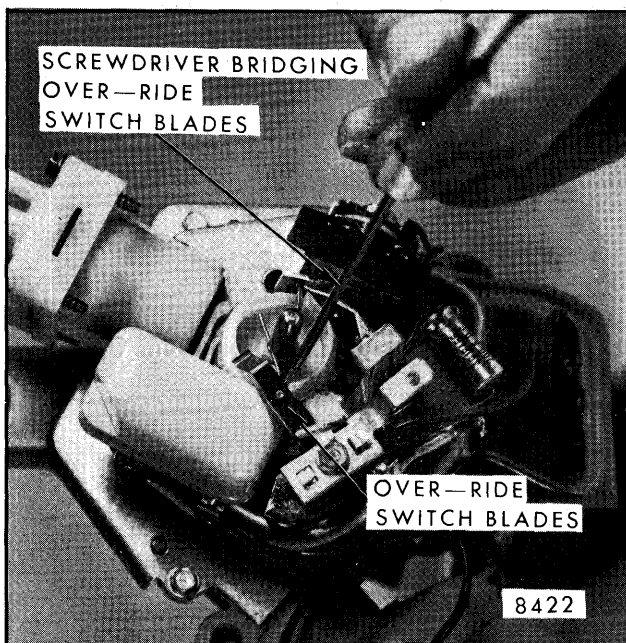


Fig. 2-75-Condition 3 - Wiper Shuts Off Before Wash Cycle is Completed

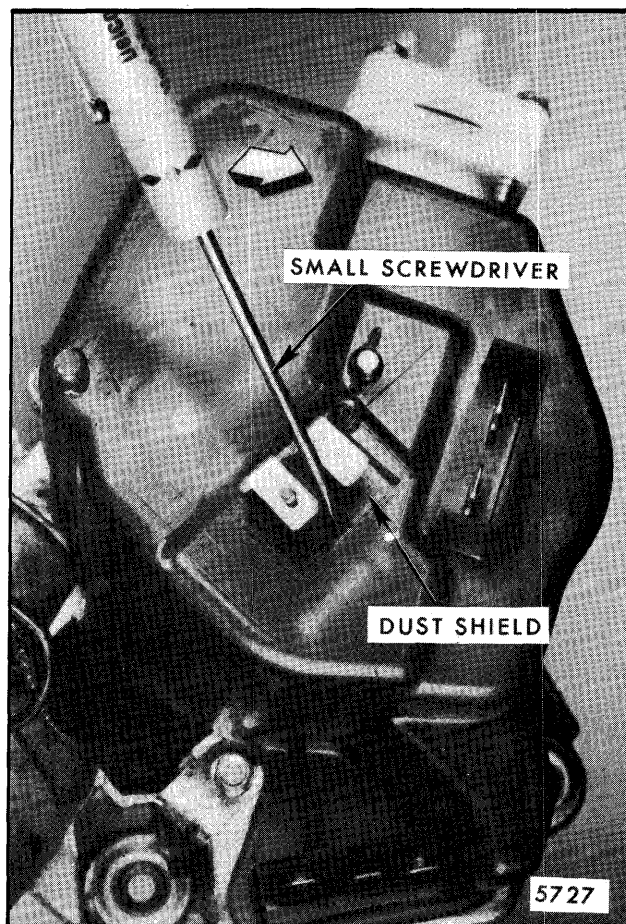


Fig. 2-76-Washer Pump Cover Removal

2. Position pump assembly on gearbox and install the three attaching screws (Fig. 2-78).
3. Remove locator pin.
4. Route and attach the red, green and black with pink stripe leads as shown in Figure 2-77.
5. Position cover on washer pump mechanism and snap it over the mounting pin.
6. Reinstall small plastic plate in terminal 6 and 7 opening, refer to Figure 2-78.
7. Reinstall wiper in vehicle and attach wiring and hoses.

Washer Pump Components

1. Valve Assembly
 - a. Note position of valve assembly pipes relative to the pump housing for reassembly, then remove the four screws that attach valve assembly to housing (Fig. 2-79).

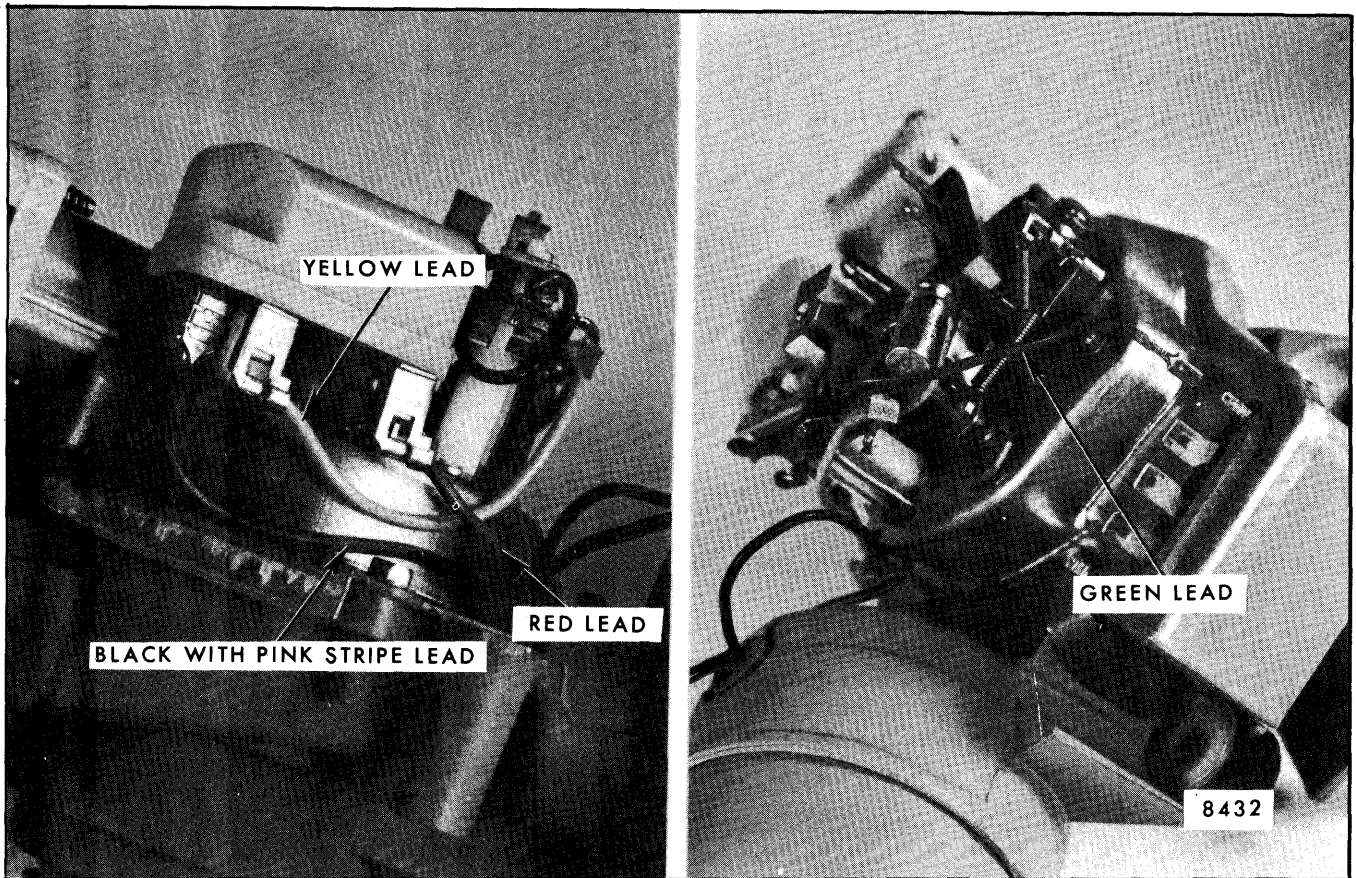


Fig. 2-77-Modified Pulse Relay Terminals and Leads

- b. Remove seal ring between housing and valve body and save for reassembly.
2. Drive Cam
 - a. Remove push-on retainer and slide cam off shaft (Fig. 2-80). New retainers are provided in cam service packages.
3. Timing Device, Holding Switch and Override Switch Assembly, Pulse Relay Assembly
 - a. Remove attaching screw and lift the Pulse Relay Timing Device, Holding Switch and Override Switch Assembly off the washer frame surface.

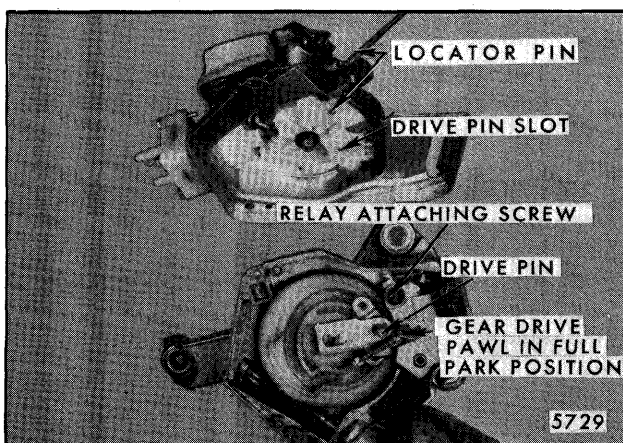


Fig. 2-78-Installing Pump to Motor



Fig. 2-79-Valve Assembly

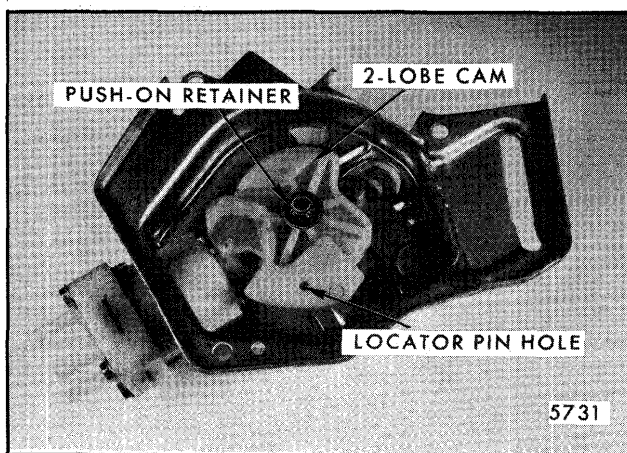


Fig. 2-80-Drive Cam

- b. Disconnect red and yellow leads from pulse relay and detach from locator pins.
- c. To reassemble, position pulse relay on switch base locator pins, rotate drive cam counter-clockwise to position shown in Figure 2-80, then secure the complete assembly to washer pump frame with the attaching screw.

NOTE: If screw strips, use a nut (6-32 thread) to secure.

- d. Reconnect red and yellow leads to appropriate pulse relay terminals (Fig. 2-77).
4. Ratchet Gear, Dog Spring, Ratchet Pawl, Relay Armature
 - a. Follow step a under item 3.
 - b. Remove dog spring assembly (Fig. 2-81).
 - c. Remove ratchet pawl retaining ring, disconnect pawl spring and slide pawl off cam-follower shaft (Fig. 2-81).
 - d. Disconnect relay armature spring and remove armature (Fig. 2-81).
 - e. Release ratchet gear spring from groove in shaft and slide ratchet gear off shaft.
 - f. Reassemble ratchet gear of shaft.

NOTE: If necessary, move the piston actuator plate slightly to permit the ratchet gear collar

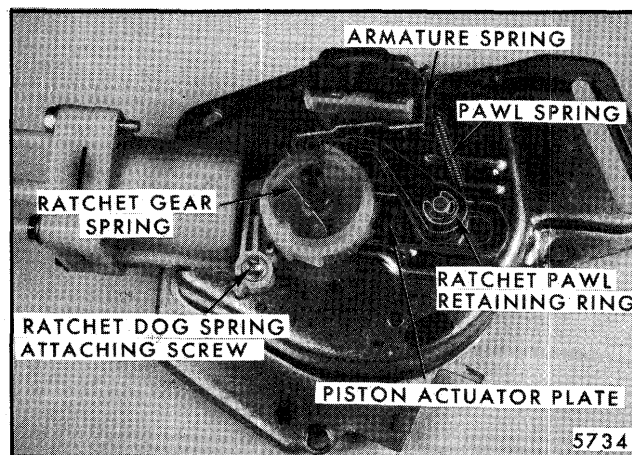


Fig. 2-81-Ratchet Pawl

to slide by the tang and bottom on the actuator plate.

5. Piston and Pump Housing

- a. Follow steps a through e under item 4.
- b. To release the pump housing assembly from the sheet metal base, pull it in the direction toward the valve assembly until the grooves in the plastic pump housing clear the base. Next, detach the assembly from the cam-follower pin.

NOTE: The piston and housing is serviced as an assembly. The valve is serviced separately.

6. Relay-Terminal Board Assembly

- a. Follow disassembly steps under items 2, 3 and steps c and d under item 4.
- b. Bend or chisel off the four bent over tabs that secure the coil mounting bracket to the base (Fig. 2-80).

To install a replacement relay assembly, hold it securely against the base mounting surface and bend locking tabs over.

CAUTION: Be careful not to damage coil winding or terminals.

- c. Reassemble the ratchet pawl, pawl spring armature and armature spring and drive cam and recheck pump operation.

SECTION 3

UNDERBODY

INDEX

SUBJECT	PAGE	SUBJECT	PAGE
General Body Construction	3-1	Vertical Dimensions	3-3
Alignment Checking.....	3-1	Floor Pan Deadeners and Insulators	3-4
Reference Point Dimensions	3-1	Floor Carpet	3-6
Horizontal Dimensions	3-3		

UNDERBODY ALIGNMENT

GENERAL BODY CONSTRUCTION

The body is of unitized construction, with a stub frame supporting the front end sheet metal, radiator cradle, front suspension, engine and other mechanical components. Unitized construction demands that underbody components be properly aligned to assure correct suspension location. In the event of collision damage, it is important that the underbody be thoroughly checked and, if necessary, realigned in order to accurately establish proper dimensions.

Since each individual underbody component contributes directly to the over-all strength of the body, it is essential that proper welding, sealing and rust-proofing techniques be observed during service operations. Underbody components should be rust-proofed whenever body repair operations which destroy or damage the original rust-proofing are completed. When rust-proofing critical underbody components, it is essential that a good quality type of air dry primer be used (such as corrosion resistant zinc chromate or equivalent material). It is not advisable to use combination type primer-surfacers.

There are many classifications of tools that may be employed to correct the average collision damage situation including frame straightening machines, lighter external pulling equipment and standard body jacks.

ALIGNMENT CHECKING

An accurate method of determining the alignment of the underbody utilizes a measuring tram gage. The

tram gage required to perform all recommended measuring checks properly must be capable of extending to a length of 90 inches. At least one of the vertical pointers must be capable of a maximum reach of 18 inches.

Dimensional checks indicated in the upper portion of Figure 3-2 are calculated on a horizontal plane parallel to the plane of the underbody. Precision measurements can be made only if the tram gage is also parallel to the plane of the underbody. This can be controlled by setting the vertical pointers on the tram gage according to the dimensional checks shown in the lower portion of Figure 3-2. For actual dimensions, see chart in text.

A proper tramming tool is essential for analyzing and determining the extent of collision misalignment present in underbody construction.

To assist in checking alignment of the underbody components, repairing minor underbody damage or locating replacement parts, the following underbody dimensions and alignment checking information is presented.

REFERENCE POINT DIMENSIONS - (Fig. 3-2)

Dimensions to gage holes are measured to dead center of the holes and flush to adjacent surface metal unless otherwise specified. The master gage holes, adjacent to the No. 2 body mount and in the compartment pan side rails near the rear spring front attachment are key locations and should be used wherever possible as a basis for checking other reference points.

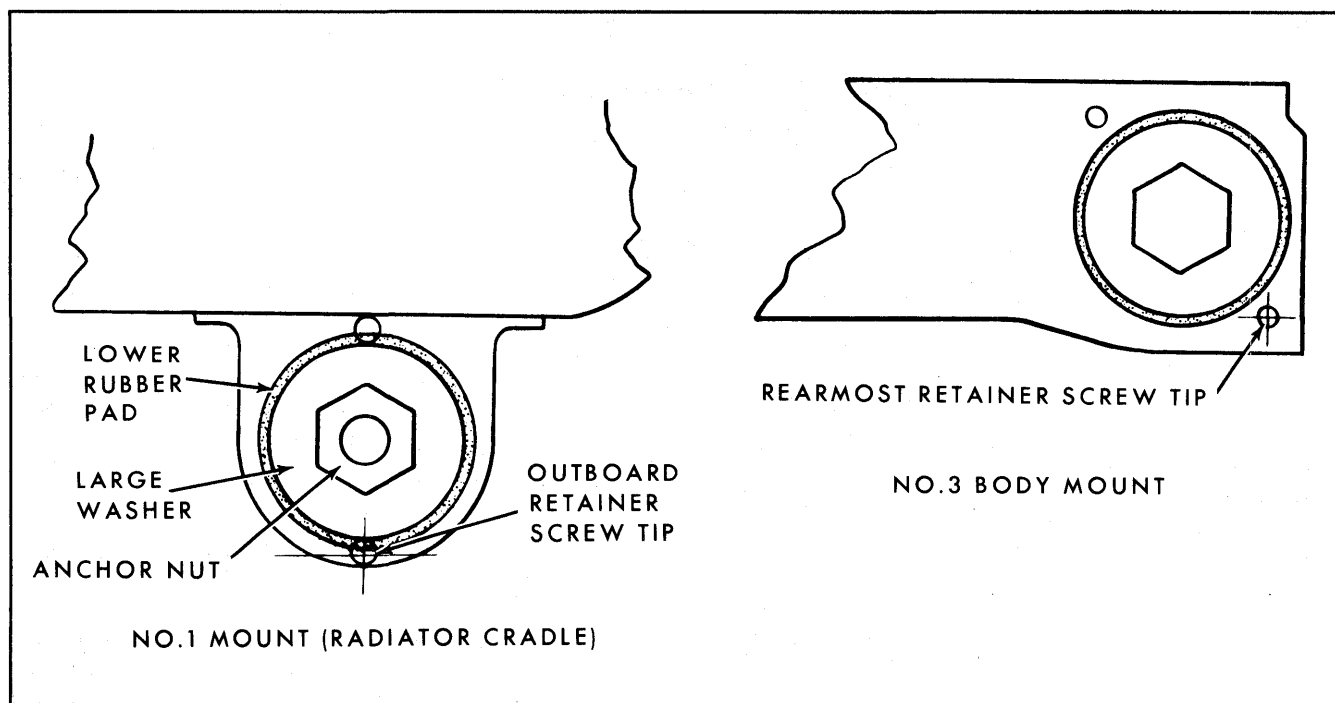


Fig. 3-1-No. 1 Mount (Radiator Cradle) and No. 3 Body Mount

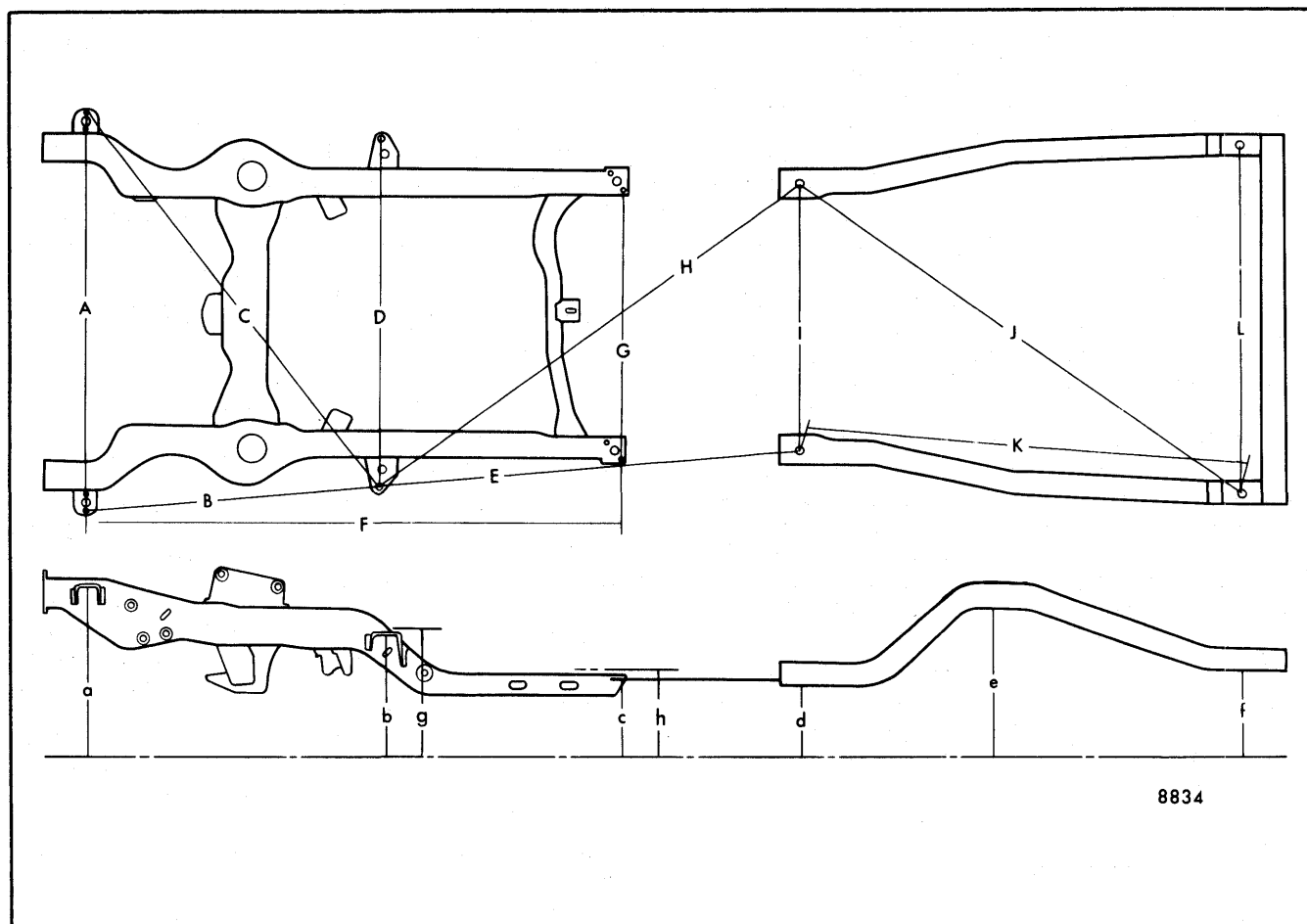


Fig. 3-2-Horizontal and Vertical Checking Dimensions

HORIZONTAL DIMENSIONS - (Fig. 3-2)

Fig.

Fig. Ref.	Dimension	Location
A	50-15/16"	Center of outboard retainer screw (Fig. 3-1) of No. 1 mount (radiator cradle) located approximately 5" rearward of front of frame to center of outboard retainer screw on opposite side of body. Note: Removal of anchor nut, large washer and lower rubber pad may be required to gain access to center of retainer screw.
B	38-1/4"	Center of outboard retainer screw of No. 1 mount (radiator cradle) and center of master gage hole adjacent to No. 2 body mount on same side of body.
C	61-1/8"	Center of outboard retainer screw of No. 1 mount (radiator cradle) and center of 5/8" master gage hole adjacent to No. 2 body mount on opposite side of body.
D	44-9/16"	Between centers of 5/8" master gage holes adjacent to No. 2 body mount across body.
E	71-3/4"	Center of 5/8" master gage hole adjacent to No. 2 body mount and center of 5/8" master gage hole in compartment pan side rail on same side of body adjacent to spring front support.
F	69-3/4"	Center of outboard retainer screw of No. 1 mount (radiator cradle) and center of rearmost retainer screw at No. 3 body mount on same side of body (Fig. 3-1).
G	34-1/4"	Between centers of rearmost retainer screws at No. 3 body mounts across body (Fig. 3-1).
H	81-1/2"	Center of 5/8" master gage hole adjacent to No. 2 body mount and center of 5/8" master gage hole in compartment pan side rail on opposite side of body adjacent to spring support.

Fig.

Fig. Ref.	Dimension	Location
I	33-5/16"	Between centers of 5/8" master gage holes in compartment pan side rails across body adjacent to spring front supports.
J	75-3/4"	Center of 5/8" master gage hole in compartment pan side rail adjacent to spring front support to center of 3/4" gage hole in compartment pan side rail on opposite side of body approximately 10" rearward of rear shackle attaching bolt to frame. Note: Adjust pointer and level bar if required.
K	64-13/16"	Center of 5/8" master gage hole in compartment pan side rail adjacent to spring front support and center of 3/4" hole in compartment pan side rail on same side of body approximately 10" rearward of rear shackle attaching bolt to frame.
L	45-1/4"	Between center (front or rear edge) of 3/4" holes in compartment pan side rails approximately 10" rearward of center of rear shackle attaching bolt to frame.

VERTICAL DIMENSIONS - (Fig. 3-2)

Fig.

Fig. Ref.	Dimension	Location
a	15"	Center of outboard retainer screw of No. 1 mount (radiator cradle) located approximately 5" rearward of front of frame. Note: Removal of anchor nut, large washer and lower rubber pad may be required to gain access to center of retainer screw.
b	9-3/4"	Center of 5/8" master gage hole adjacent to No. 2 body mount.
c	4"	Center of rearmost retainer screw at No. 3 body mount (Fig. 3-1).
d	4-5/16"	Center of 5/8" master gage hole in compartment pan side rail adjacent to spring front support.

Fig. Ref.	Dimension	Location
e	15-3/4"	Lower surface of compartment pan side rail at kick-up rear of rear axle housing (30-1/2" forward of center of hole "f").
f	11-1/2"	Center of 3/4" hole in compartment pan side rail approximately 10" rearward of center of rear shackle attaching bolt to frame.

Fig. Ref.	Dimension	Location
g	11-1/16"	Bottom surface of dash brace adjacent to No. 2 body mount (on body).
h	4-5/16"	Bottom surface of body floor pan side rail at rear edge of stub frame (on body).

FLOOR PAN DEADENERS AND INSULATORS

Floor pan deadeners and insulators have been designed specifically for the higher floor pan temperatures that result from the use of the catalytic converter in the exhaust system. Therefore, when servicing a vehicle in the field, it is essential that any insulators and/or deadeners that may have been disturbed or removed, be re-installed in the original sequence and location. Also, if it becomes necessary to replace an insulator or deadener, the proper material specified for that particular location on the floor pan must be used.

The insulator and deadener materials are listed below. Refer to Figures 3-3 and 3-4 for the type of material specified for each area.

1. Insulator floor pan (thermal) - Consists of 3/8 inch thick Aluminum Silica.
2. Deadener assembly floor pan - Consists of 3/8 inch thick Resinated Fibers and 1/8 inch thick mastic.
3. Insulator floor pan - Consists of 3/8 inch thick Resinated Fibers.

CAUTION: All of the above materials must meet Motor Vehicle Safety Standard No. 302 for flammability.

NOTE: The above parts are 48" wide; order by linear foot and cut to fit.

When servicing or replacing interior deadeners and/or insulators, the following instructions must be observed (refer to Figs. 3-3 and 3-4).

1. Insulators and deadeners must be installed in the original position and sequence. Pieces should be butted together properly in order to avoid gapping or overlapping.
2. If it becomes necessary to replace an insulator or deadener, it is essential that the specified material be used.
3. Use original part to determine the amount of replacement material required and as a template for cutting and fitting the new piece to the floor pan.
4. When installing deadener or insulator do not enlarge cut-outs or holes that are used for the attachment of interior components such as seats or seat belts.
5. Cross body harnesses for interior components such as power seats, electric seat back locks, lap belt warning light and buzzer, or rear speakers must be routed over the floor pan insulators and/or deadeners in the original location and properly clipped in place.
6. Spray-on deadeners and trim adhesives should not be applied to the top of the floor pan at area directly over the catalytic converter or muffler(s).

NOTE: MAKE FLOOR PAN DEADENERS FROM RESINATED FIBERS AND MASTIC ASSEMBLY - SEE TEXT

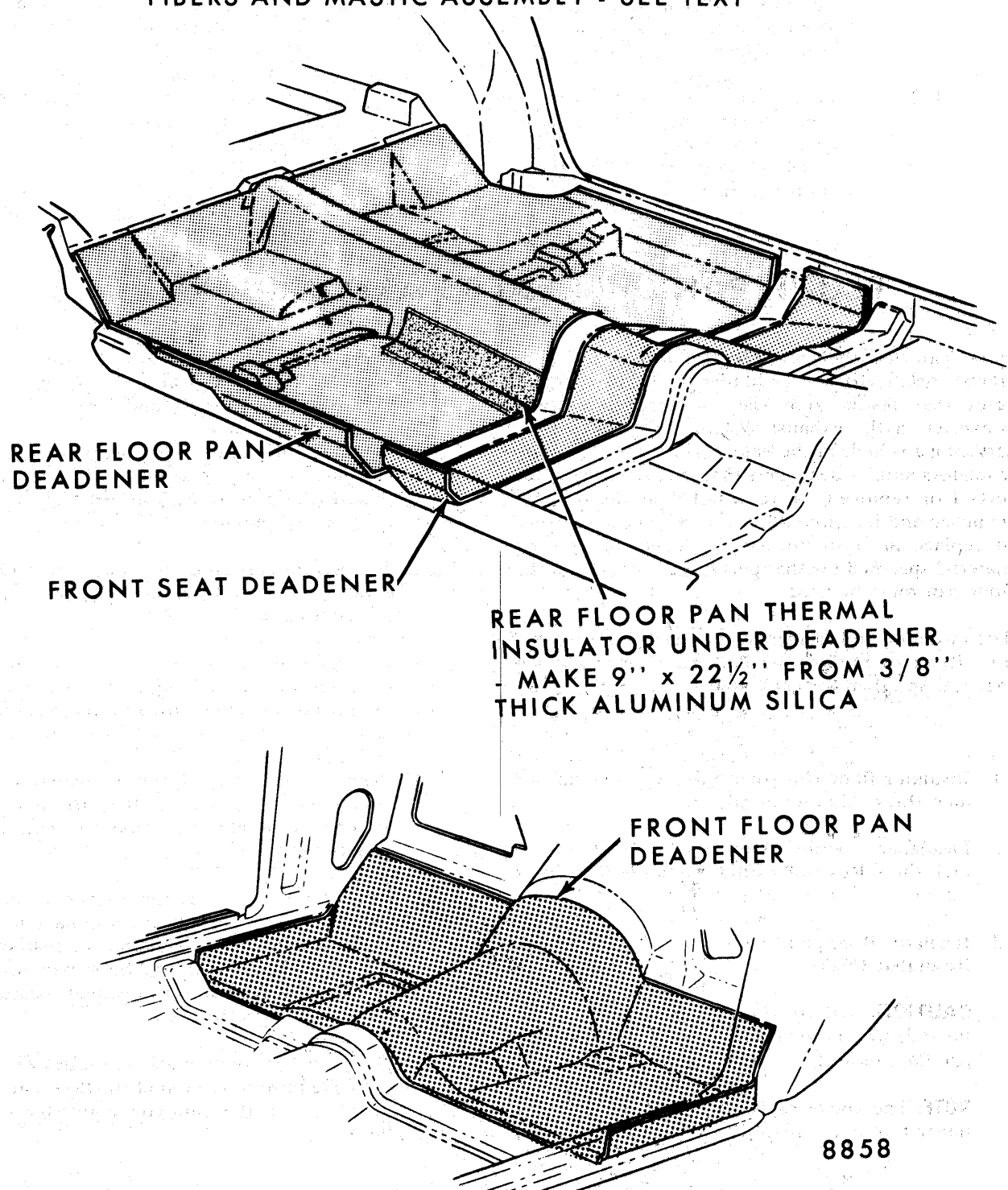


Fig. 3-3-Floor Pan Deadeners and Insulators

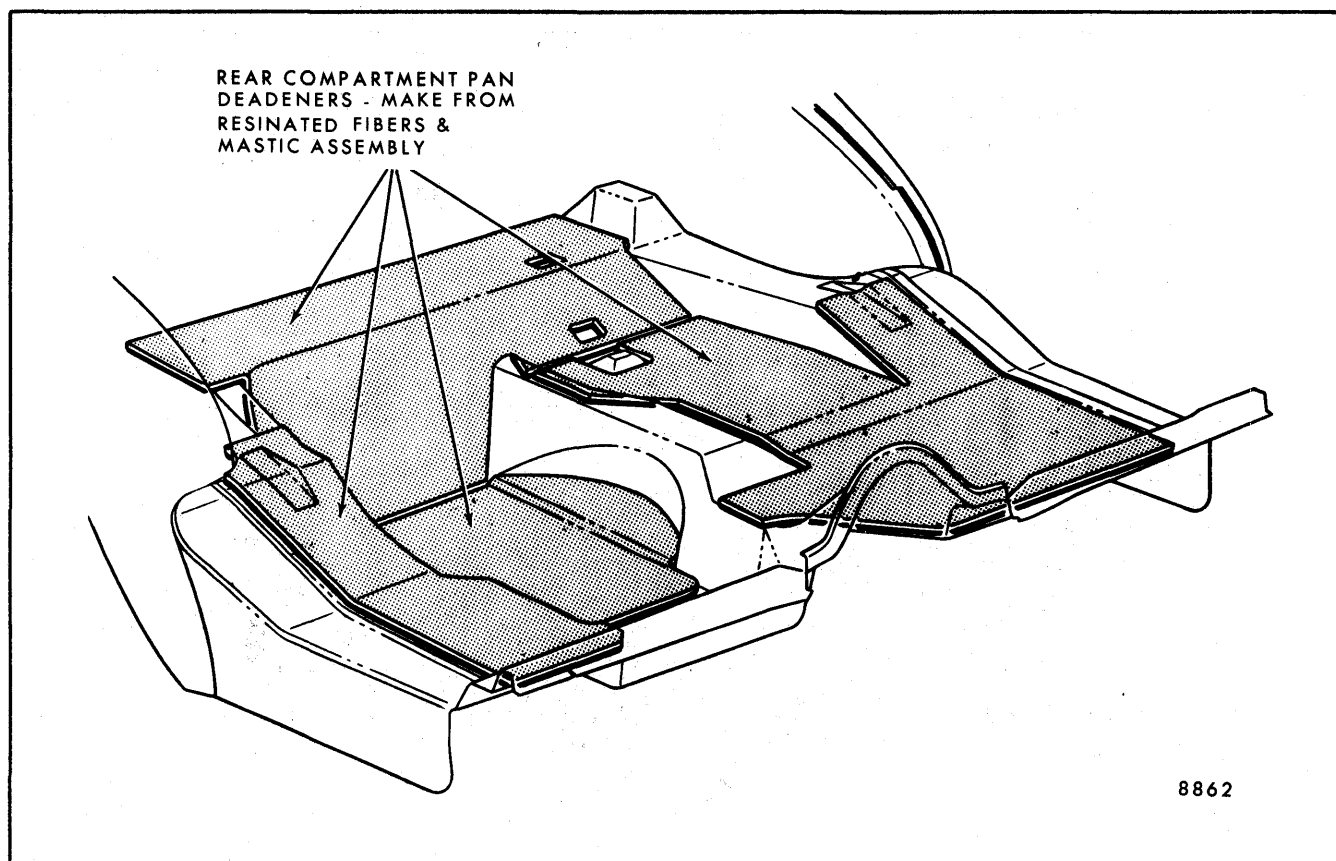


Fig. 3-4-Rear Compartment Deadeners

FLOOR CARPET

The floor carpet consists of a molded one (1) piece carpet over both front and rear floor pan. To remove

or install carpet, it will be necessary to remove front seat assembly, rear seat cushion and front and rear door sill plates.

SECTION 4

FRONT END

INDEX

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Shroud Side Trim Panel - Right and Left Sides	4-2		

BODY VENTILATION

DESCRIPTION

Body ventilation is controlled through the vehicle's Automatic Climate Control System. Refer to Section 1 (Heating and Air Conditioning) of the Cadillac

Seville Chassis Manual for operation.

Fresh air is taken into the front plenum chamber and introduced into the Automatic Climate Control System through a vacuum door in the right side shroud.

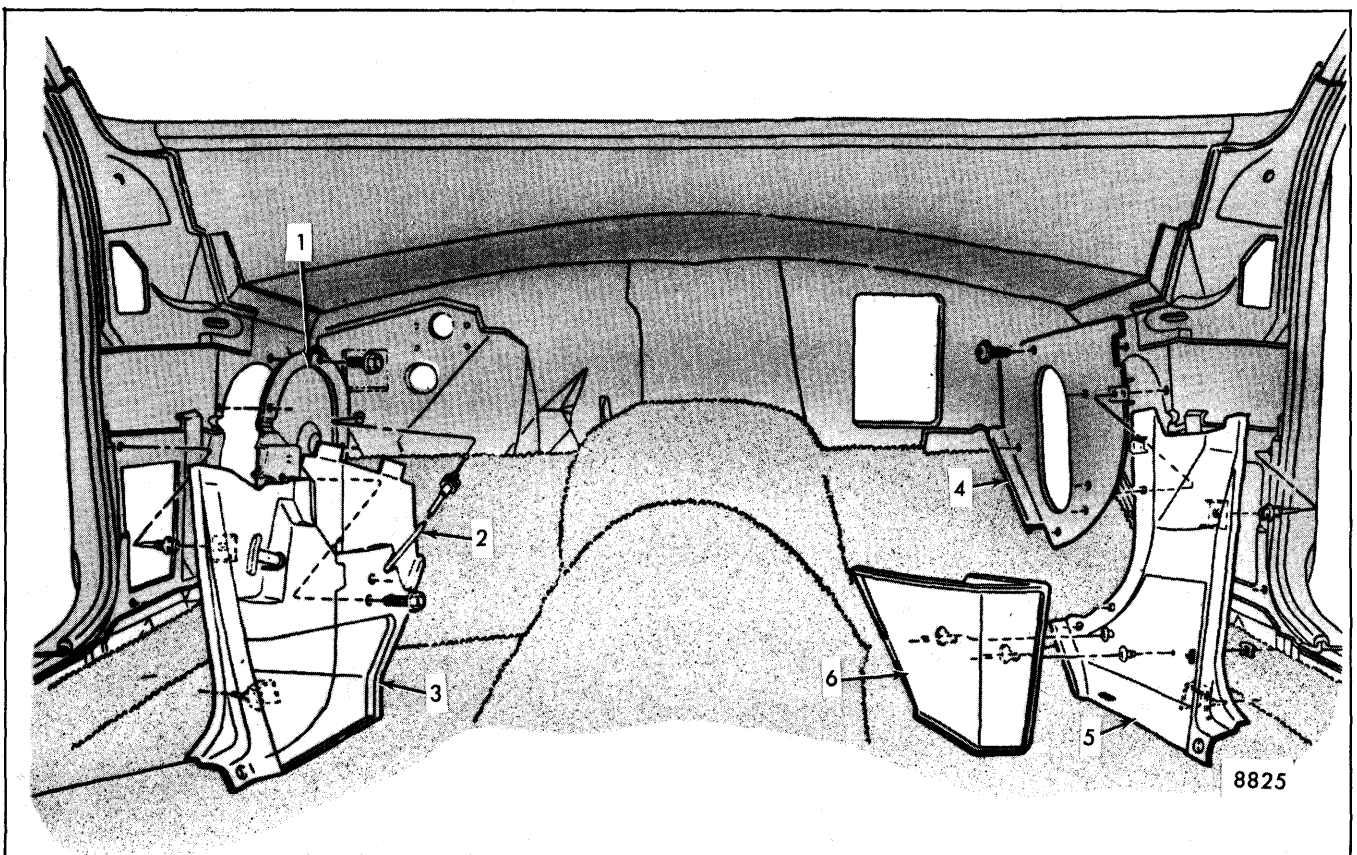


Fig. 4-1-Front End Component Identification

- | | | |
|---|---|---|
| 1. Shroud Side Cover Assembly (Left Side) | 3. Shroud Side Trim Panel | 5. Rear Shroud Side Trim Panel (Right Side) |
| 2. Hood Release Cable Assembly | 4. Side Duct Panel and Door Assembly (Right Side) | 6. Litter container |

FRONT END COMPONENT IDENTIFICATION

Figure 4-1 identifies interior front end components as installed on this style.

SHROUD SIDE TRIM PANEL - RIGHT AND LEFT SIDES

The left side shroud panel consists of a trim panel and hood release cable assembly (items 2 and 3, Fig. 4-1). The cable must be removed as an assembly during shroud side trim panel removal.

The right side shroud panel consists of a side duct panel and door assembly ("4", Fig. 4-1), a rear shroud side trim panel ("5", Fig. 4-1), and a litter container ("6", Fig. 4-1).

Removal and Installation - Left Side

1. Remove sill plate.
2. Raise hood and disengage hood release cable from hood latch. Block latch to prevent inadvertent hood locking until cable has been reinstalled onto latch.
3. Remove screw securing release cable grommet to firewall and remove grommet from cable (Fig. 4-2).
4. Remove two screws securing trim panel to side shroud; then using trim removal tool J-24595, BT 7323 or equivalent, disengage two trim fasteners from side shroud panel (Fig. 4-3).
5. To install, reverse removal procedure.

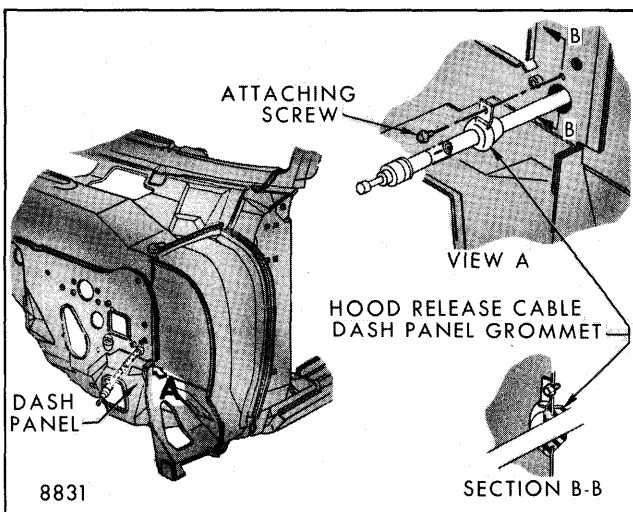


Fig. 4-2-Hood Release Cable Dash Panel Grommet

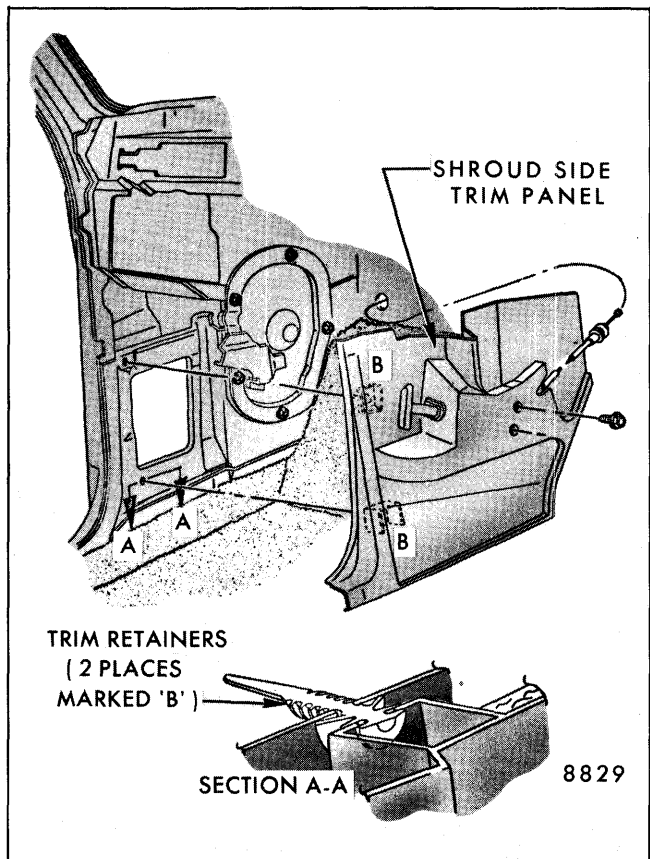


Fig. 4-3-Shroud Side Trim Panel (Left Side)

REAR SHROUD SIDE TRIM PANEL - RIGHT SIDE

Removal and Installation

1. Remove litter container and sill plate.
2. Remove three screws securing rear trim panel to side shroud; then using trim removal tool J-

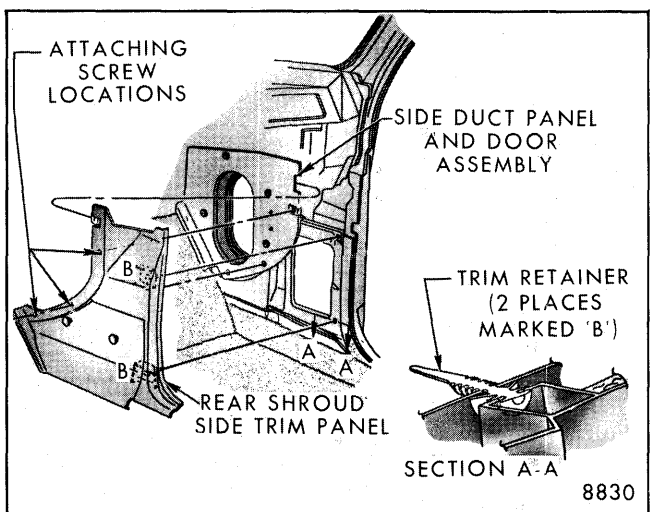


Fig. 4-4-Rear Shroud Side Trim Panel - Right Side

24595, BT 7323 or equivalent, disengage two trim fasteners from side shroud panel (Fig. 4-4).

3. To install, reverse removal procedure.

SHROUD DUCT PANEL AND DOOR ASSEMBLY - RIGHT SIDE

Removal and Installation

1. Remove rear shroud side trim panel as previously described.
2. Remove Cadillac furnished vacuum door actuator and heater assembly as described in Section 1 of the Cadillac Seville Chassis Manual.
3. Remove four (4) side duct panel to side shroud panel attaching screws (Fig. 4-5); then remove duct panel and door assembly.

NOTE: Prior to reinstallation apply a minimum 1/4" bead of pumpable medium bodied sealer completely around attaching flange of assembly as shown in Figure 4-6 to prevent water entry.

4. To install, reverse removal procedure. Use care not to disturb peripheral seal around door assembly (Fig. 4-6).

PRESSURE RELIEF VALVE

Pressure relief valves are attached to rear lock pillars (in door opening below belt) with screws. Figure 4-7 shows pressure relief valve installation.

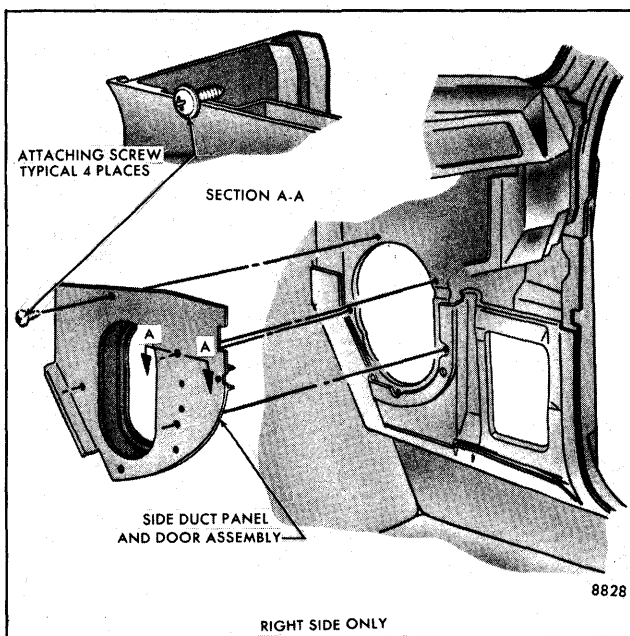


Fig. 4-5-Side Duct Panel and Door Assembly

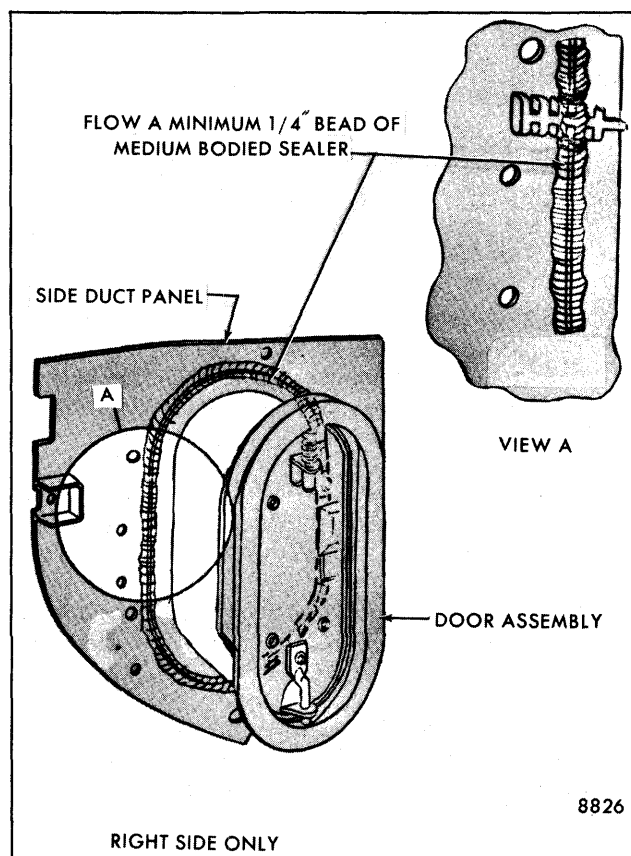


Fig. 4-6-Side Duct Panel and Door Assembly Sealing

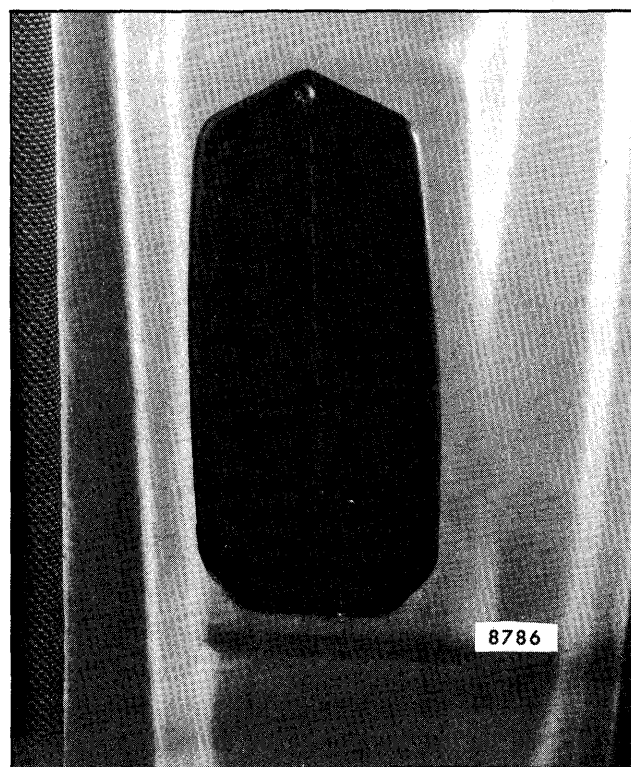


Fig. 4-7-Pressure Relief Valve

HOOD LATCH RELEASE CABLE

Description

The one-piece hood latch release cable includes pull handle, control cable and housing. The control cable is installed through the left shroud side trim panel (Fig. 4-8). A sealing grommet attached to dash panel completes the assembly.

Removal and Installation

1. Raise hood and disengage cable from hood latch assembly. Block latch to prevent inadvertent hood locking until cable has been reinstalled.
2. Remove screw securing release cable grommet to dash panel (Fig. 4-2); then remove grommet from cable.
3. Remove left shroud side trim panel, including cable assembly, sliding control cable through hole in dash panel.
4. Disengage control assembly housing from snap-in slot of trim panel (Fig. 4-8) and remove cable assembly from panel pulling toward pull handle end.
5. To install, reverse the removal procedure. When installing grommet, hold cable taut and force grommet into hole in dash panel. Reinstall grommet to dash panel attaching screw.

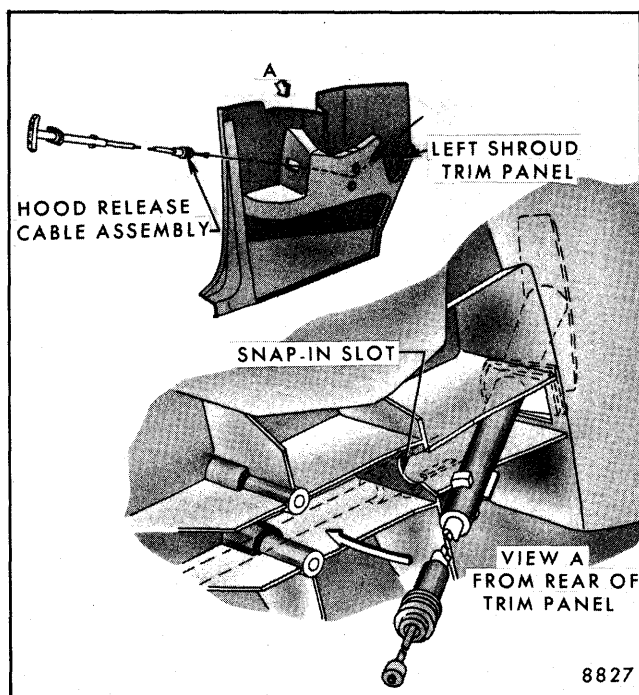


Fig. 4-8-Hood Latch Release Cable

FRONT COWL PANEL

Description

The Cadillac furnished front cowl panel is an applied, screw retained finishing panel installed between the rear edge of hood and windshield glass. The windshield wipers park beneath the front cowl panel.

Removal and Installation

1. Raise hood and remove four visible front cowl attaching screws (Fig. 4-9).
2. Remove two hidden attaching screws at out-board ends of panel. These screws are accessible through holes in panel (see arrows, Fig. 4-9).
3. To install, reverse removal procedure.

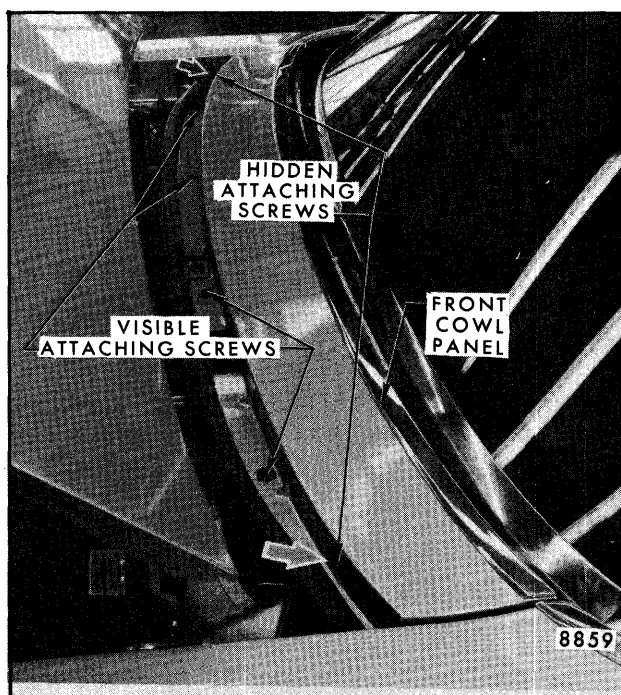


Fig. 4-9-Front Cowl Panel

SECTION 5

DOORS

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DOOR TRIM ASSEMBLY**DESCRIPTION**

This portion of the manual contains service operations required to remove the door trim panel(s). The various component parts which require removal are described and illustrated in the following procedures. In addition, the attachment of some component parts is similar on both front and rear doors and the removal procedure is similar.

ELECTRIC WINDOW CONTROL, DOOR PULL HANDLE AND ESCUTCHEON ASSEMBLY**Removal**

1. Using a flat-bladed tool (putty knife) carefully disengage electric window switch cover plate locking tabs from escutcheon assembly.
2. Disconnect electric window terminal and block-out switch terminal (Fig. 5-1).
3. Remove one (1) escutcheon to door inner panel attaching screw.
4. Lift door pull handle to out position and remove two (2) screws under handle at both ends (Fig. 5-2).
5. Remove escutcheon, allowing clearance for door inside handle.
6. To install, reverse removal procedure.

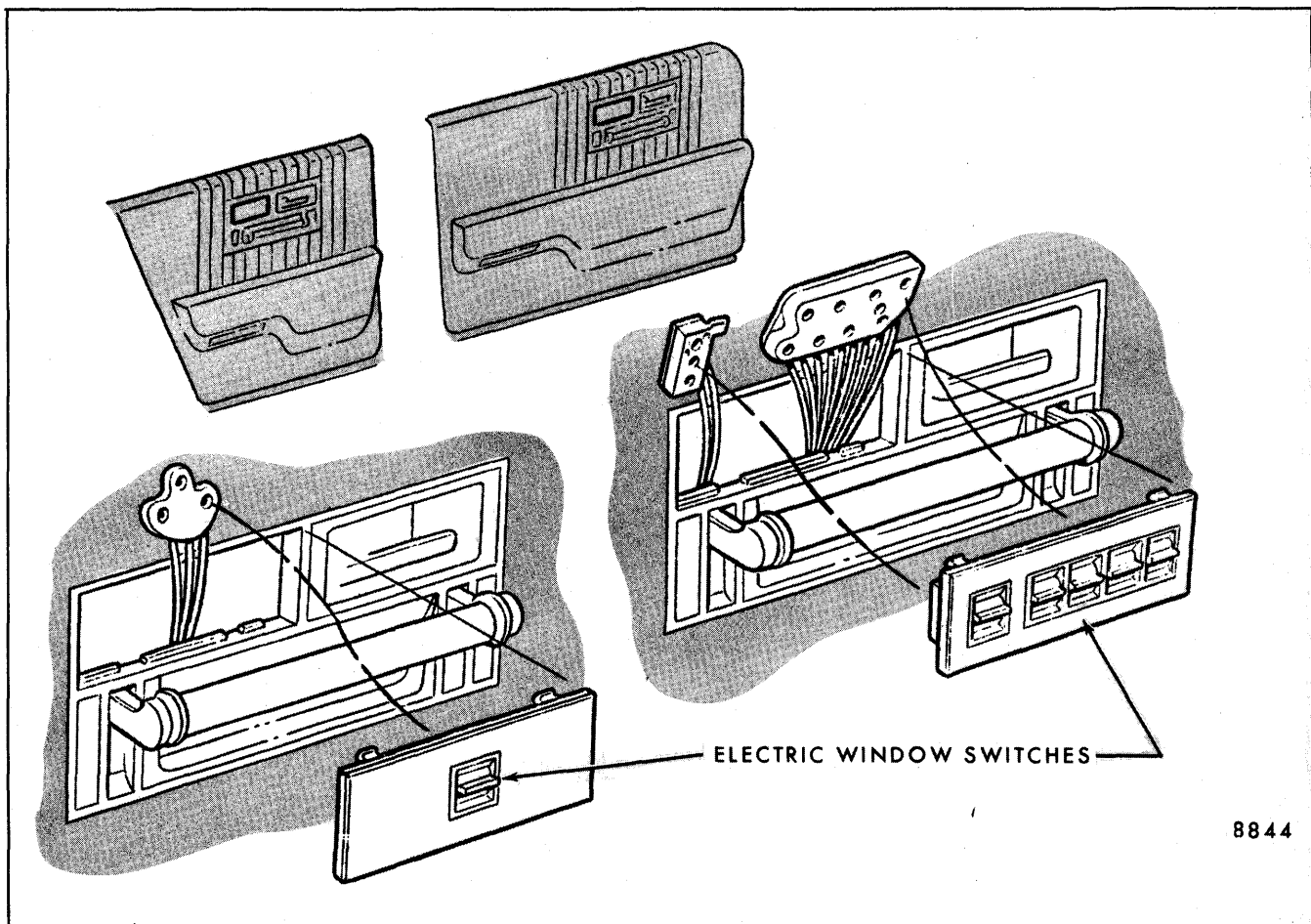


Fig. 5-1-Electric Window Control

ARMREST COVER ASSEMBLY - FRONT AND REAR DOOR

Description

Depending on door, the armrest cover assembly incorporates a power door lock switch, door lock rocker switch, seat adjuster switch, remote outside mirror control, cigar lighter and ash tray assemblies.

Removal - Front Door Armrest Cover

1. Remove one (1) seat adjuster cover plate attaching screw and disconnect power connector (Fig. 5-3).
2. Remove cover plate rear attaching screw and lift up and rearward to disengage retainer at front of cover plate (Fig. 5-4).
3. Loosen set screw which retains the base of outside remote mirror control.
4. Disconnect locking rod from door lock rocker button retaining clip (Fig. 5-4).

5. Disconnect power door lock feed terminal.
6. Remove armrest cover assembly from door trim pad.
7. To install, reverse removal procedure.

Removal - Rear Door Armrest Cover

1. Open armrest cover plate door and remove two (2) attaching screws.
2. Lift cover assembly to gain access and disconnect door locking rod from rocker button retaining switch (Fig. 5-5).
3. Disconnect cigar lighter feed wires from base of lighter.
4. Remove armrest cover assembly from trim pad.
5. To install, reverse removal procedure.

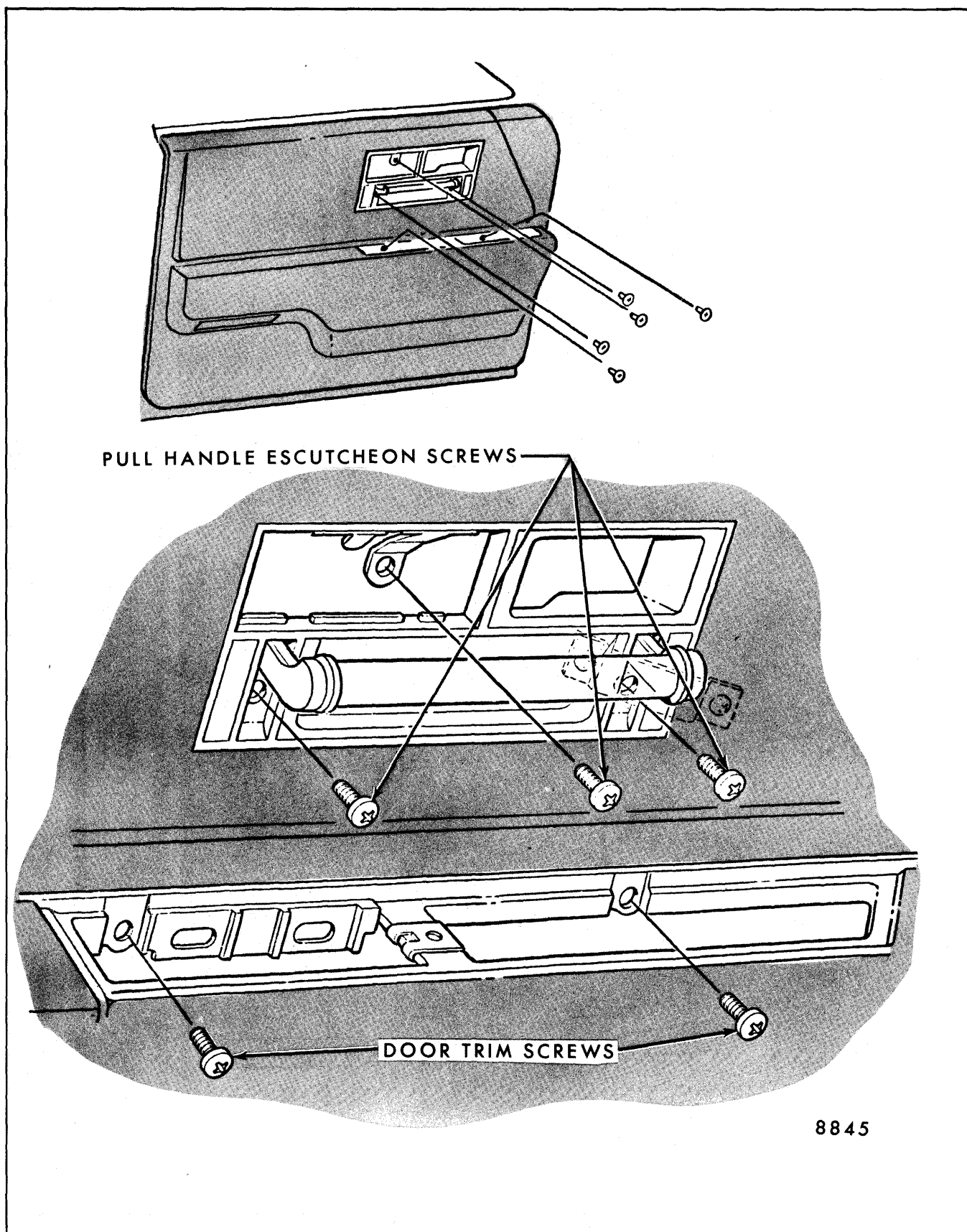


Fig. 5-2-Door Pull Handle Assembly

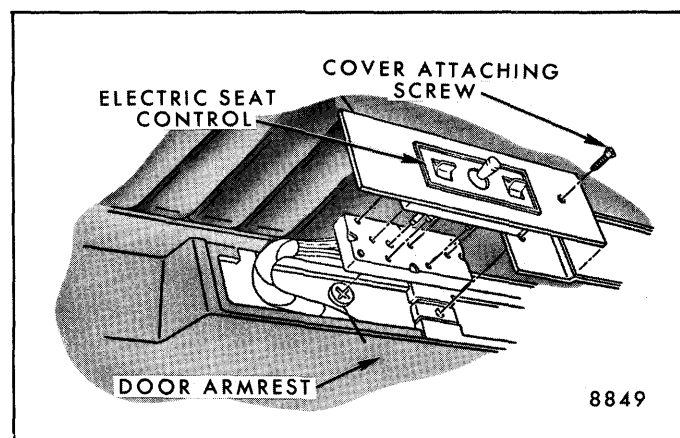


Fig. 5-3-Front Seat Adjuster Control Cover Plate

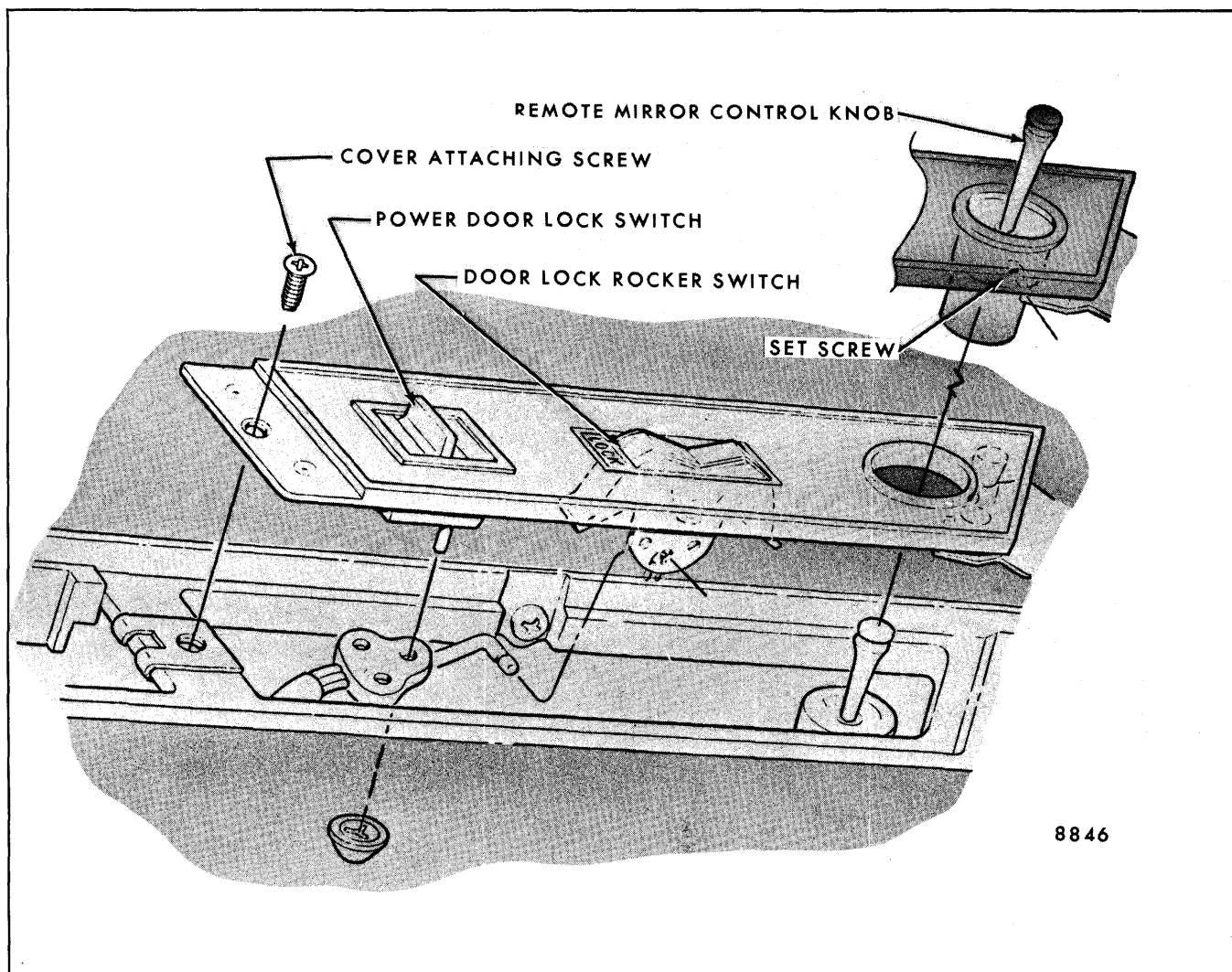
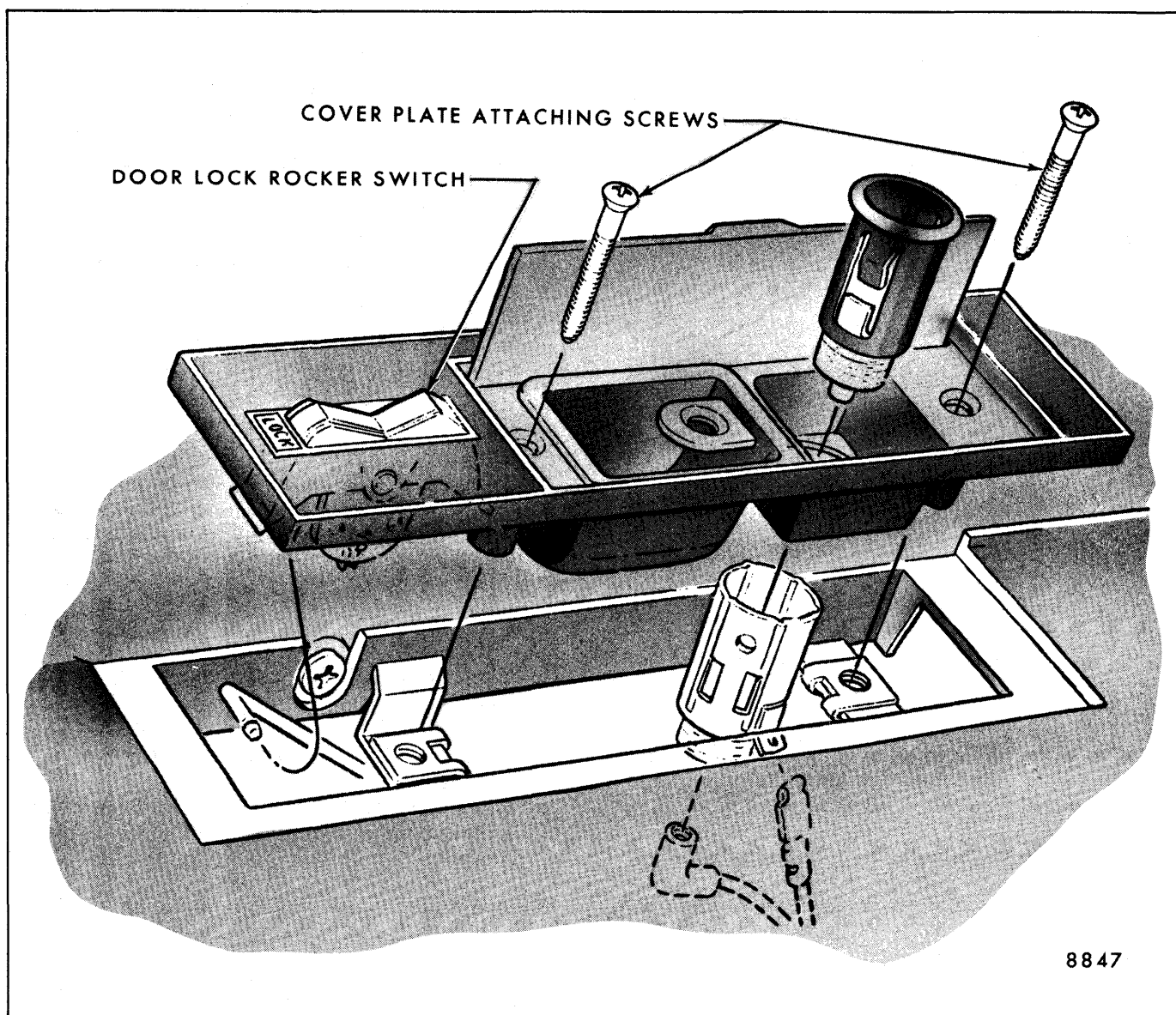


Fig. 5-4- Front Door Armrest Cover



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Fig. 5-5-Rear Door Armrest Cover

DOOR TRIM PAD ASSEMBLY

Description

The trim pad on both front and rear door(s) is a one-piece assembly which is retained to the door inner panel with nylon fasteners and attaching screws. The component parts previously listed require removal prior to complete trim pad removal.

Removal

1. Remove trim pad to door inner panel attaching

screws through armrest cover plate access hole(s).

2. Using tool J-24595 or BT-7323 or equivalent, disengage door trim pad to door inner panel nylon fasteners (Fig. 5-6).
3. Lift trim panel up and slightly rearward to disengage from door inner panel at beltline.
4. Disconnect courtesy lamp feed wire connector from back side of trim panel.

Installation

Prior to installing the door trim assembly, check that

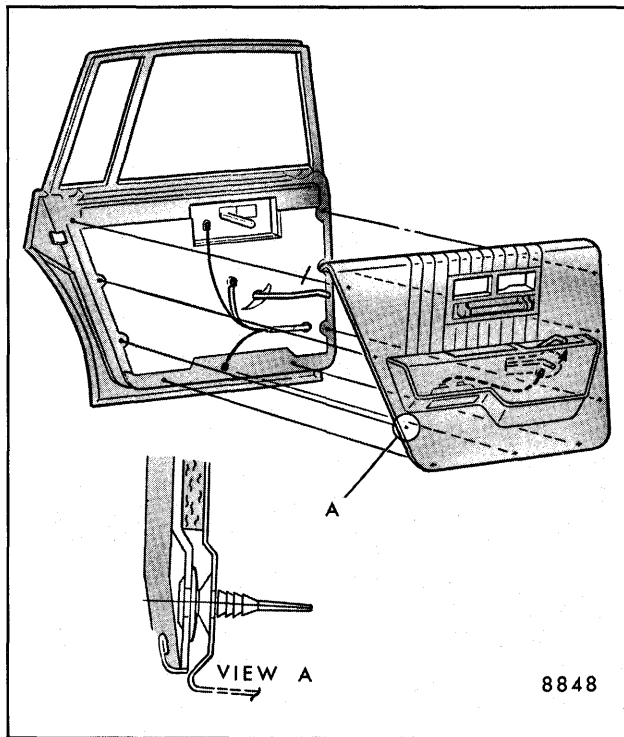


Fig. 5-6-Typical Door Trim Pad Installation

all nylon fasteners are properly placed in the corresponding slots in the inner facing of the panel. Replace damaged fasteners where necessary.

1. Connect courtesy lamp feed wire terminal.
2. Place trim assembly over door inner panel at

beltline and position slightly forward to installed location.

3. Align trim fasteners with corresponding attaching holes in door inner panel (Fig. 5-6).
4. Apply pressure at attaching locations to seat the retaining feature of the fastener into the door inner panel.
5. Install attaching screws at armrest cover access hole.

CENTER PILLAR TRIM SUPPORT PANEL

Description

The center pillar trim finishing panel removal is covered in the restraint systems portion of the Seat Section of this manual. Removal procedure for the center pillar trim support panel is described as follows:

1. Remove front and rear door sill plates.
2. Remove center pillar trim finishing panel (see Seat Section).
3. Remove six (6) attaching screws (Fig. 5-7).
4. Using tool J-24595 or BT-7323 or equivalent, remove upper nylon fastener from support bracket.
5. To install, reverse removal procedure.

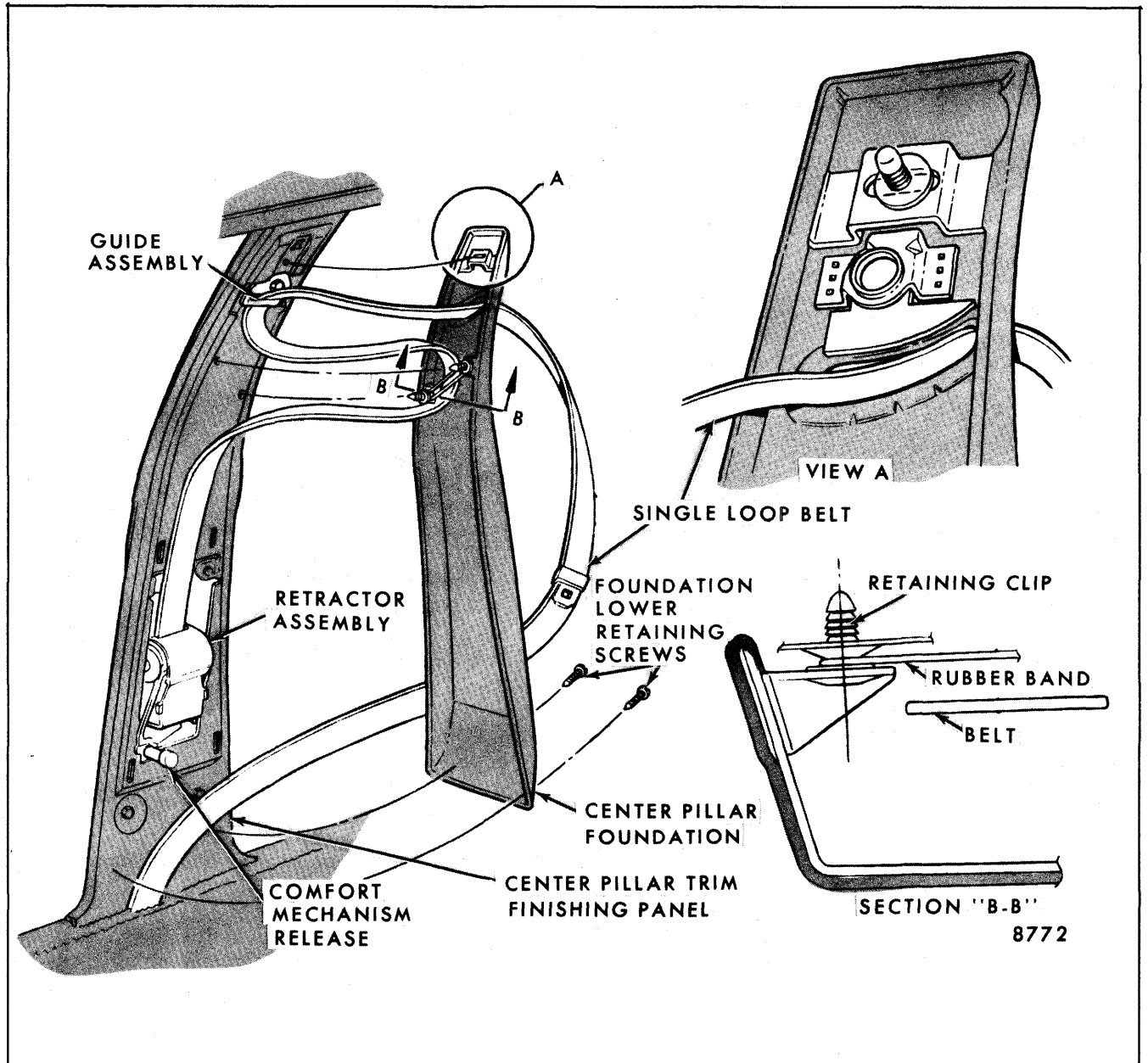


Fig. 5-7-Center Pillar Trim Support Panel

EXTERIOR MOLDINGS

DESCRIPTION

The exterior moldings are secured to the body by any one or a combination of the following attachments. Refer to Figure 5-9 for illustrations of attachments.

- A. Attaching screw
- B. Weld stud or screw retained plastic clip
- C. Spring type (self-retained)

MOLDING	ATTACHMENT
BODY SIDE (FRONT DOOR) (REAR DOOR)	A & B
DOOR BELT REVEAL	A
DOOR UPPER FRAME (VERTICAL AND HORIZONTAL)	C

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Fig. 5-8-Molding Installation

GENERAL PRECAUTIONS

When removing or installing any body exterior molding, certain precautions should be exercised.

1. Adjacent finishes should be protected with masking tape to prevent damage to finish.
2. Proper tools and care should be employed to guard against molding damage.
3. When a molding is overlapped, the overlapping molding must be partially disengaged or removed first.

SEALING OPERATION

Although detailed sealing operations for each individual molding are not described, the following information is given to permit a satisfactory sealing operation.

Medium bodied sealer or body caulking compound are the sealers most frequently used to provide either a watertight seal or for anti-rattle measures.

Holes in body panels for screws, bolts or clips that would permit water to enter the interior of the body must be sealed with body caulking compound or presealed screws, nuts or clips.

MOLDING CLIP REPLACEMENT

If a weld stud on an outer panel becomes damaged or broken off, use the following procedure:

1. Drill a small hole in the panel adjacent to original weld stud installation.
2. Insert a self-sealing screw through original clip and into outer panel or replace damaged weld stud with self-sealing screw type weld stud.

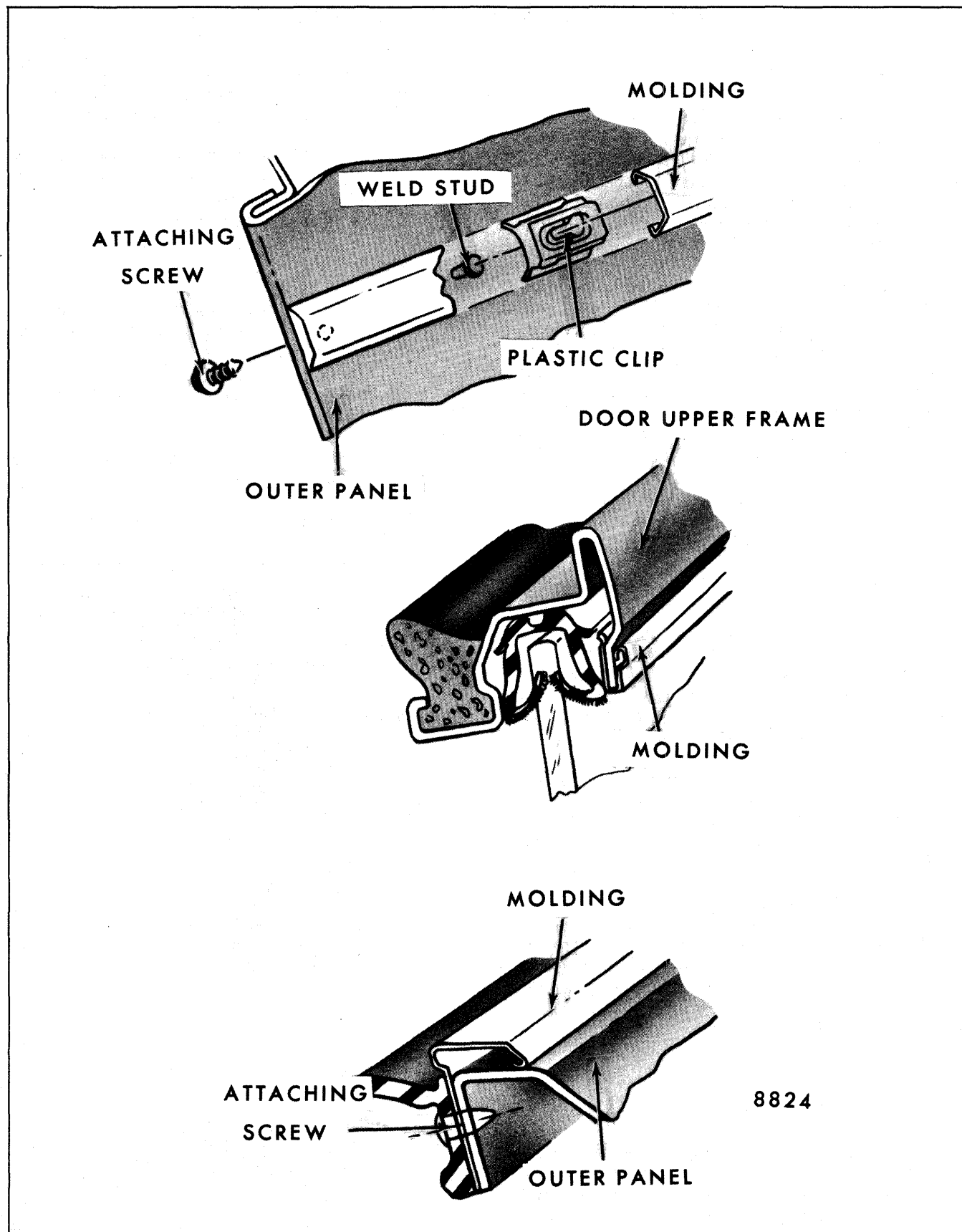


Fig. 5-9-Door Moldings and Attachments

FRONT AND REAR DOORS

INTRODUCTION

This section of the manual contains the service operations that are necessary for the removal, installation, adjustment and sealing of door assemblies and individual door hardware components. The procedures are arranged in the sequence that they would be performed when servicing a door. To locate specific procedures, refer to the "Door Index".

Hardware items are divided into three categories. Those which are common to all doors are found under "Front and Rear Doors", which also includes door weatherstrips. Items which are peculiar to front or rear doors are found under "Front Doors" or "Rear Doors" respectively. In addition to these categories, the first two portions of this section, "Door Trim" and "Exterior Moldings" include removal procedures for all door trim and exterior molding items.

FRONT AND REAR DOOR WEATHERSTRIPS

Description

Both the front and rear doors use nylon fasteners to retain the door weatherstrips. The fasteners are a component part of the weatherstrip and secure the weatherstrip to the door by engaging piercings in the door panels. The serrations on the fastener retain the fastener in the piercing and also seal the openings from water entry (Fig. 5-10). Nylon fasteners are used below the beltline only. Weatherstrip adhesive retains the weatherstrip around the door upper frame (Fig. 5-11). In addition to the fastener, weatherstrip adhesive is used at the beltline and down the front door hinge pillar.

To disengage nylon fasteners from door panel piercings use tool J-21104 or equivalent (Fig. 5-10). This tool permits removal of the weatherstrip without damaging the serrations on the fasteners so that the weatherstrip can be reinstalled if desired. Although a replacement door weatherstrip will include nylon fasteners, individual fasteners are also available as service parts.

Removal

1. Use a flat-bladed tool to break cement bond between door and weatherstrip. A tool applicable to this usage can be fabricated from tool J-21104 or equivalent (Fig. 5-12). On all styles, weatherstrip adhesive is used for a distance of 9" on door lock pillar and the entire length of the front door

hinge pillar (Fig. 5-11). In addition, the weatherstrip is retained by weatherstrip adhesive completely around door upper frame (Fig. 5-11).

2. Use tool J-21104 or equivalent to disengage weatherstrip from door where weatherstrip is retained by nylon fasteners.

Installation

1. If previously removed weatherstrip is to be reinstalled, inspect nylon fasteners and replace those that are damaged.
2. Clean off old weatherstrip adhesive from door.
3. Apply black weatherstrip adhesive around door upper frame (Fig. 5-11).
4. Position weatherstrip to door as follows:

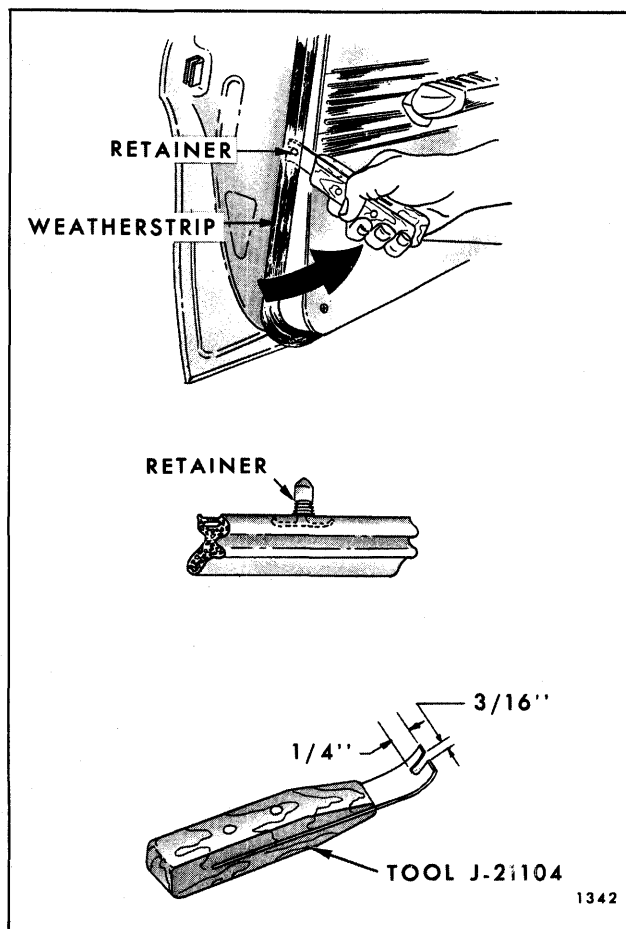


Fig. 5-10-Door Weatherstrip Removal

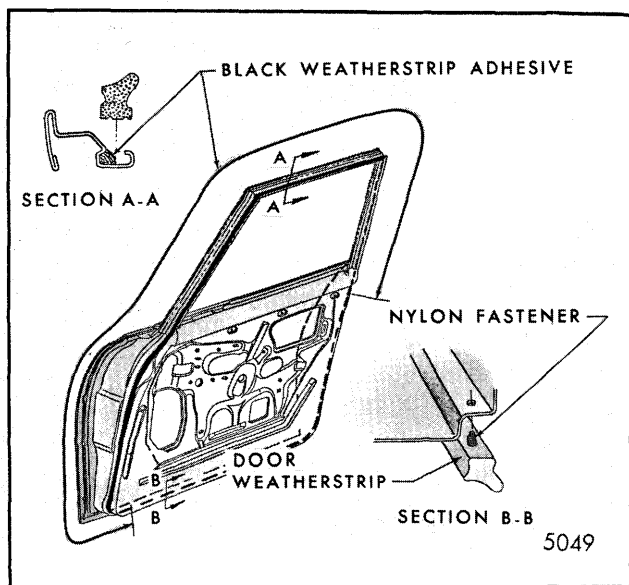


Fig. 5-11-Door Weatherstrip

- a. On front doors, locate weatherstrip from rear upper corner.
- b. On rear doors, locate weatherstrip from molded front upper corner.
5. Tap nylon fasteners into door piercing using a hammer and blunt caulking tool.
6. After all fasteners have been installed, apply weatherstrip adhesive between door and weatherstrip outboard surface at the following locations:
 - a. For full length around front door upper frame, 9" down door lock pillar starting at beltline, and down entire hinge pillar facing from beltline down.

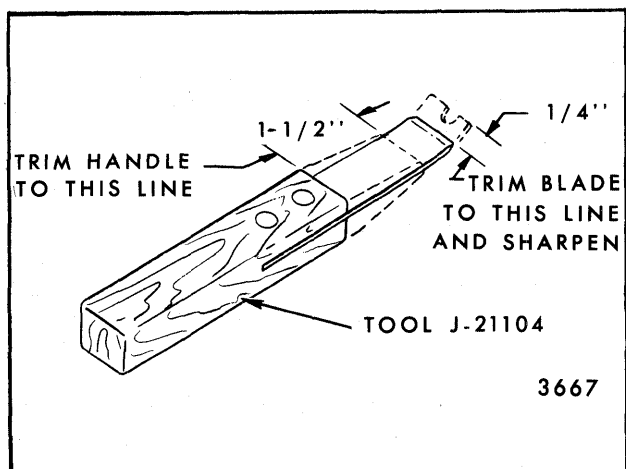


Fig. 5-12-Weatherstrip Removal Tool

- b. On rear doors, full length around door upper frame, 9" down both door lock pillar and door hinge pillars starting at beltline.

CAUTION: If weatherstrip becomes damaged at fastener location and will not retain fastener, remove fastener and secure weatherstrip to door with weatherstrip adhesive. If more than two consecutive fastener locations become damaged, replace weatherstrip.

Although weatherstrip adhesive is specified only at specific locations, it can be used at any point where additional retention or sealing is required.

FRONT AND REAR DOOR INNER PANEL WATER DEFLECTOR

Description

Waterproof deflectors are used to seal the door inner panel and prevent entry of water into the body. The deflector is secured by a string-loaded sealing material along both front and rear edges and by the application of waterproof sealing tape at front and rear lower corners. Whenever work is performed on front or rear doors where the water deflector has been disturbed, the deflector must be properly sealed and taped to the inner panel to prevent waterleaks (refer to Fig. 5-13). For service sealing, strip caulking is recommended if additional sealing material is required.

When access to the inner panel is required to perform service operations, the deflector may be completely or partially detached from the inner panel. If the existing water deflector is damaged so that it will not properly seal the door, replacement of the deflector is required. Water deflector roll stock is available as a service part.

The following procedure covers complete removal and installation of the water deflector. If only partial removal of the deflector is required, perform only those steps which are necessary to expose the required area of the door inner panel.

Removal - Refer to Figure 5-13

1. Remove the door trim assembly. (Refer to the "Door Trim" portion of this section.)
2. Remove waterproof body tape securing top and bottom of water deflector to door inner panel.
3. Using a flat-bladed tool such as a putty knife, or side roof rail weatherstrip removal tool (or equivalent) as described in Figure 5-12, carefully

break sealer bond between water deflector and door inner panel down both sides of deflector. Make certain tool blade is between inner panel and string that is embedded in sealer.

4. When seal has been broken down both sides of deflector, carefully remove tape from inner panel at lower corners of water deflector. Disengage water deflector from inner panel drain slot and remove deflector.

Installation

1. Inspect water deflector and, where necessary, repair any tears or holes with waterproof body tape applied to both sides of deflector.
2. If a new deflector is to be installed, use old deflector as a template.
3. Position water deflector to door inner panel and insert lower edge of deflector in retaining slot. Then, firmly roll or press edges of deflector to obtain a good bond between deflector and door inner panel.

If old sealer does not effect a satisfactory seal, apply additional strip caulking to inner panel at unsealed areas.

4. Seal lower corners of deflector by re-applying previously removed tape or new pieces of 2" or 2-1/2" waterproof body tape.

DOOR WINDOW BELT SEALING STRIPS

Description

Door window belt sealing strips are used to form a seal between the door inner and outer panels and the window at the beltline.

On this style the door window belt reveal molding is an integral part of the door outer belt sealing strip assembly. This assembly is attached to the door outer panel return flange with attaching screws.

This belt reveal molding and outer strip assembly (stapled together at manufacture) is available as a service part.

NOTE: To remove strip assembly, glass must be low enough to gain access to the attachments. In many cases, this will require removal or adjustment of window lower stop supports to permit further lowering of window assembly.

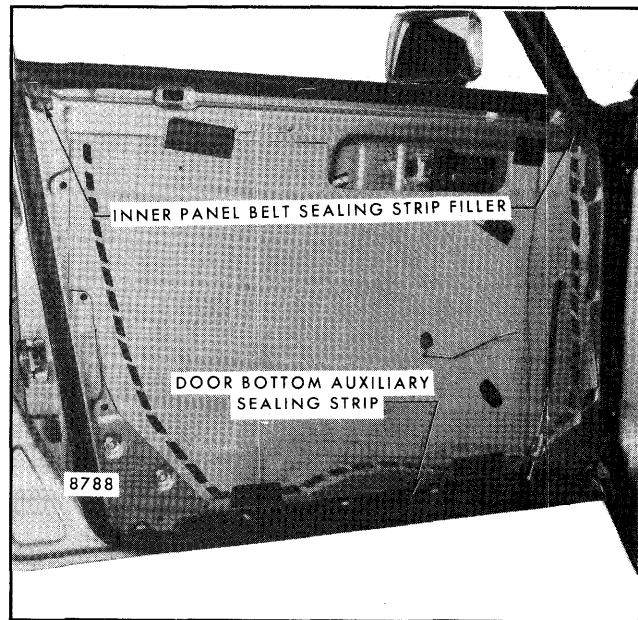


Fig. 5-13-Door Inner Panel Sealing

Removal and Installation

1. Removal of the screw retained strip assembly is performed by removing attaching screws.
2. To install, position sealing strip assembly over door outer panel return flange and reinstall attaching screws.

DOOR BOTTOM AUXILIARY SEALING STRIP

Description

The door bottom auxiliary sealing strip is located between the door trim panel and door inner panel at the bottom of the door to provide additional sealing against road and windnoise.

The auxiliary sealing strip is attached to the door inner panel with weatherstrip nylon fasteners (Fig. 5-13).

Removal and Installation

1. Remove door trim panel as previously described in the "Door Trim" portion of this section.
2. Disengage nylon fasteners from door inner panel pierced holes using weatherstrip removal tool J-21104 or equivalent (Fig. 5-10); then, remove sealing strip.
3. To install, reverse removal procedure.

INNER PANEL BELT SEALING STRIP FILLER

Description

Sealing strip belt fillers are utilized at front and rear of the inner panel beltline area on both front and rear doors to provide a "close-out" between the door trim panel and door upper frame (Fig. 5-13).

The beltline fillers are attached to the door inner panel with plastic "nail type" weatherstrip retainers.

Removal and Installation

1. Remove door trim panels as described in the "Door Trim" portion of this section.
2. Disengage "nail type" plastic fasteners from door inner panel using weatherstrip removal tool J-21104 or equivalent (Fig. 5-10); then, remove filler.
3. To install, reverse removal procedure.

FRONT AND REAR DOOR WINDOW LOWER SASH CHANNEL CAM

Description

The front and rear door window lower sash channel cams are bonded to the window with urethane adhesive caulking compound. If glass or sash channel requires replacement, the following procedure may be used.

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector, door insulator and door window as described in "Door Trim", "Front Door" or "Rear Door" portion of this section.
2. If channel cam is attached to glass and glass is to be reused, mark location of channel on glass at front and rear with crayon marker or masking tape.
3. Remove channel from glass by applying heat from welding torch with No. 2 or 3 tip along full bottom length of channel. Slowly pass tip back and forth for 60 to 90 seconds minimum, then grip channel with pliers and pull loose. If channel does not easily separate, repeat heating operation.
4. Thoroughly clean replacement glass. If original

glass is to be used, scrape all traces of urethane adhesive off with sharp bladed tool. If original channel is to be reused, clamp in vise and burn-out remaining urethane adhesive with welding torch. While still hot, wire brush urethane traces from channel and remove remaining adhesive from glass and channel with lacquer thinner. Complete cleaning operation with water.

WARNING: DURING THE URETHANE BURN-OUT OPERATION, AVOID DIRECT INHALATION OF THE FUMES BEING EMITTED.

5. If replacement glass is being installed, locate the front of sash 9-3/16" from lower front edge of glass (Fig. 5-14).
6. To bond channel to glass, a two-part epoxy such as "3M Structural Adhesive No. 8101" or equivalent is required. Thoroughly mix approximately one and one-half tablespoons of adhesive per package instructions. Place adhesive into channel at three locations indicated in Fig. 5-14.
7. Apply channel to glass at previously determined location and immediately tape channel to glass using cloth backed body tape. Allow adhesive to cure for one hour minimum prior to reinstallation into car.
8. After full epoxy cure, flow a thin bead of silicone adhesive such as "Dow Corning RTV 732 Silastic", "3M Super Silicone Part No. 8661" or equivalent the full length of channel surface to prevent water entrapment in channel (Fig. 5-14).
9. Reinstall glass, water deflector, door insulator and door trim panel assembly.

SPRING CLIPS

Description

Spring clips are used to secure remote control connecting rods and inside locking rods to door lock levers and remote handles. A slot in the clip provides for disengagement of the clips, thereby facilitating detachment of linkage.

Removal and Installation

To disengage a spring clip, use a screwdriver, or other suitable thin-bladed tool, to slide clip out of engagement as shown in Figure 5-15. To install, reverse removal procedure.

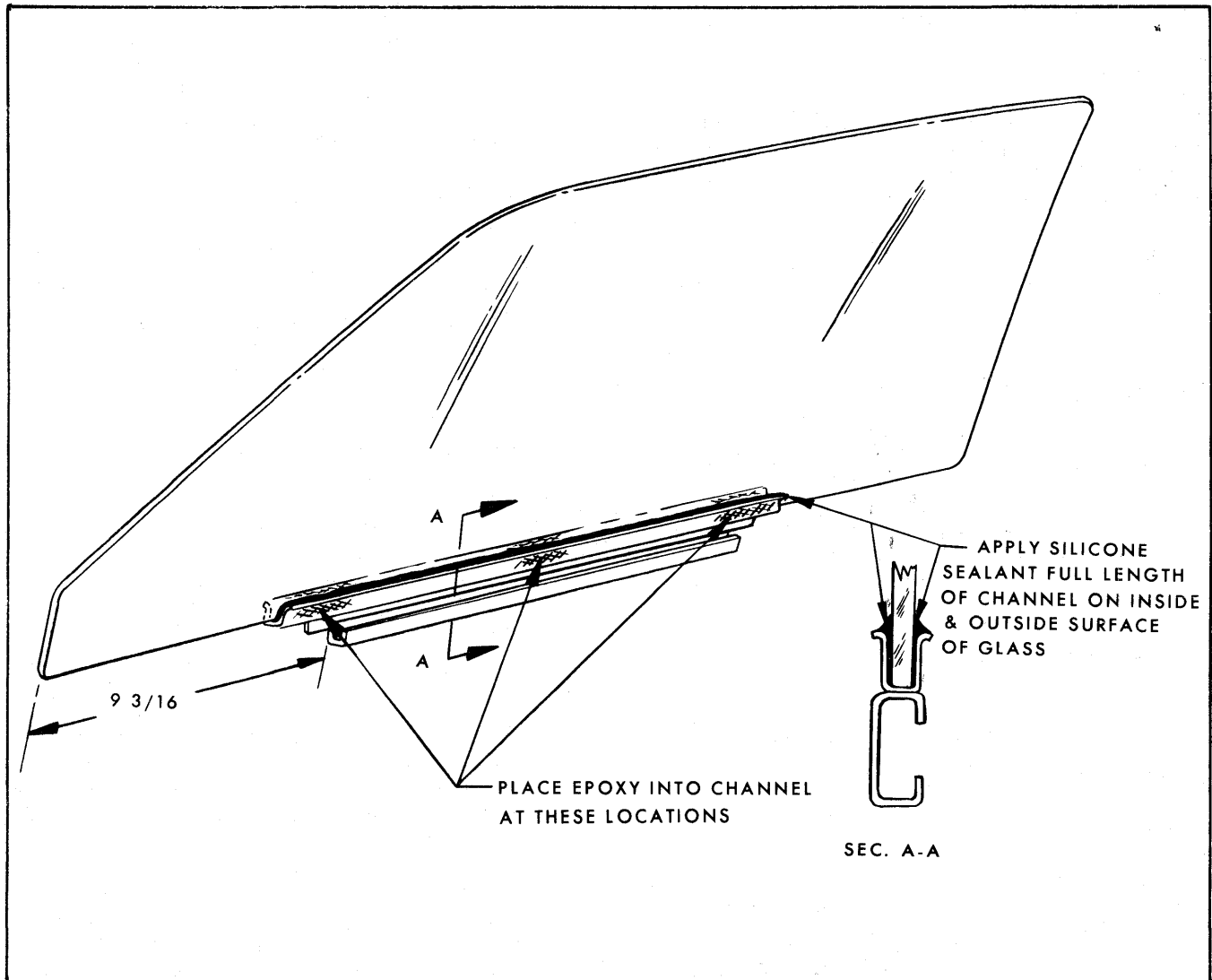


Fig. 5-14-Door Glass Lower Sash Channel Cam

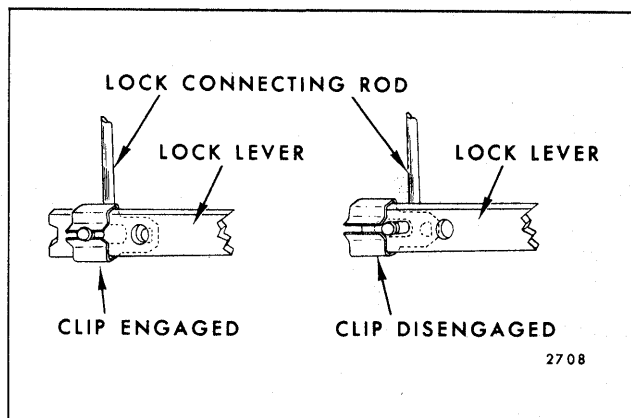


Fig. 5-15-Door Lock Spring Clip

FRONT AND REAR DOOR OUTSIDE HANDLE ASSEMBLY

Description

The "K" body utilizes a push button type outside handle.

Removal and Installation - Refer to Figure 5-16

1. Raise door window. Remove door trim assembly and detach upper rear corner of inner panel water deflector sufficiently to gain access to door outside handle attaching nuts.

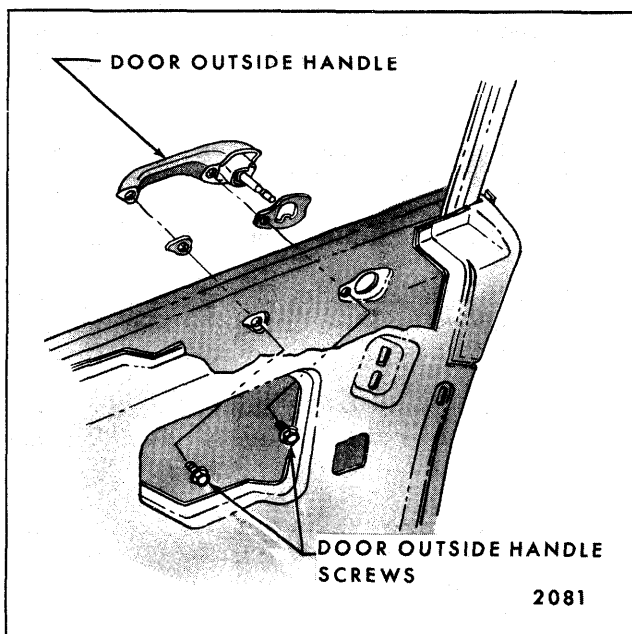


Fig. 5-16-Door Outside Handle Removal

NOTE: On styles with optional illuminated outside handle, disconnect fiber optic wire harness at door guard beam prior to removal of the handle (Fig. 5-17).

2. Remove handle attaching screws through access hole and remove door handle and gaskets from outside of body.

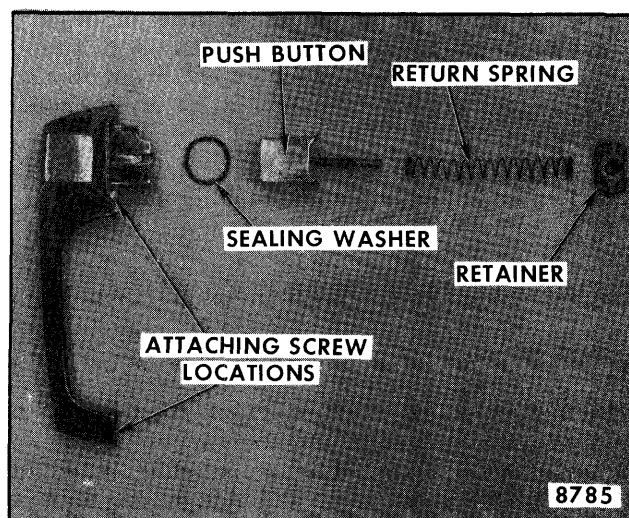


Fig. 5-18-Door Outside Handle

3. To install, reverse removal procedure.

DOOR OUTSIDE HANDLE DISASSEMBLY

1. Remove door outside handle as previously described.
2. Depress retainer slightly and rotate 1/4 turn in either direction. Remove retainer, spring, push button and shaft and sealing washer from handle (refer to Fig. 5-18).

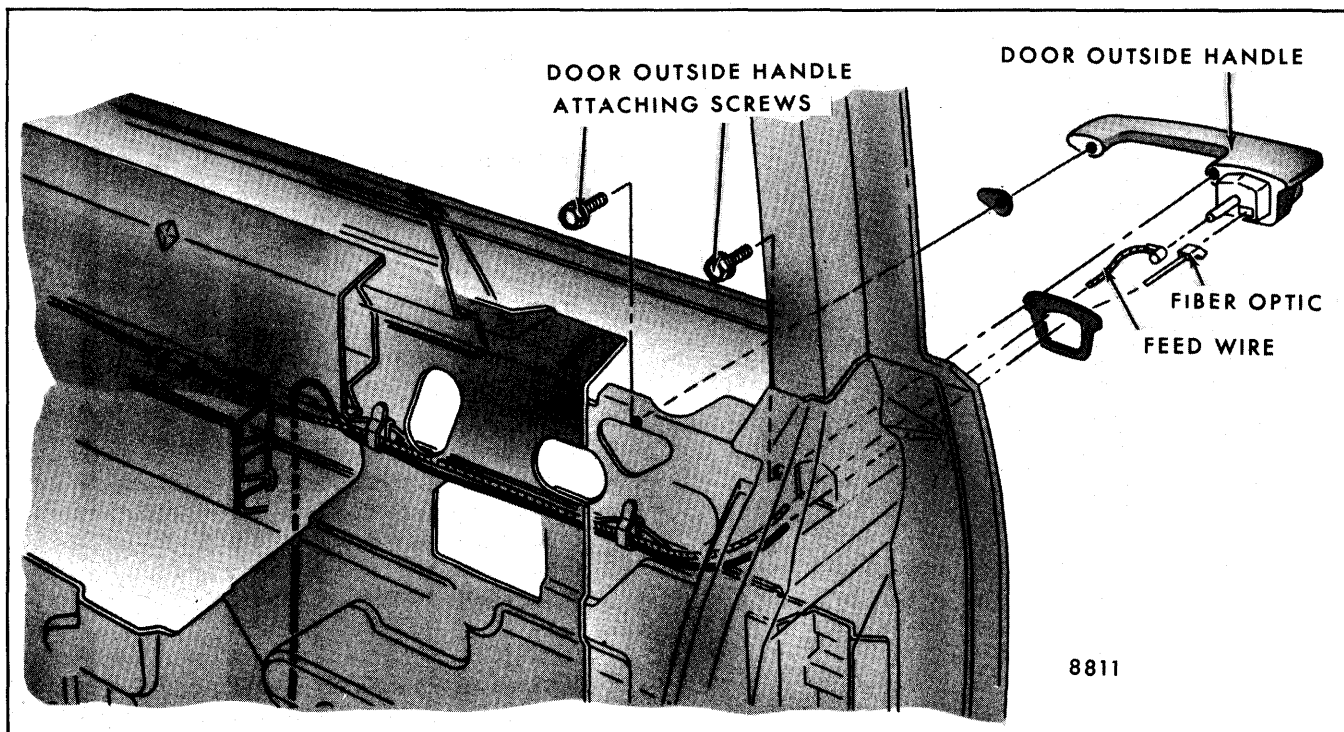


Fig. 5-17-Illuminated Door Handle

NOTE: Rear door handle push buttons, springs and retainers are serviced as an assembly. The die cast handle is serviced separately. Front door handle components are serviced separately as shown in Figure 5-18.

3. To assemble, reverse disassembly procedure.

FRONT AND REAR DOOR LOCK STRIKERS

Description

The front and rear door lock striker consists of a single metal bolt and washer assembly that is threaded into a tapped, floating cage plate located in the body lock pillar. With this design, the door is secured in the closed position when the door lock fork bolt snaps over and engages the striker bolt.

Diagnosis of Alignment and Adjustments

1. To adjust striker up or down, or in or out, insert tool J-23457, BT-7107 or equivalent into the star shaped recess in the head of the striker and

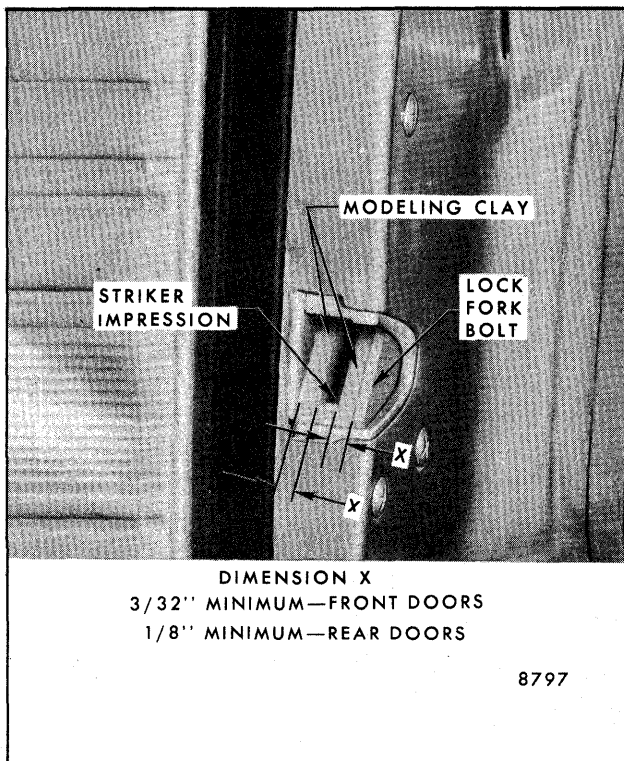


Fig. 5-19-Lock to Striker Engagement

loosen striker bolt. Shift striker as required, then tighten. (Torque striker bolt 34-46 foot pounds.)

2. To determine if striker fore or aft adjustment is required, proceed as follows:
 - a. Make certain door is properly aligned.
 - b. Apply modeling clay or body caulking compound to lock bolt opening as shown in Figure 5-19.
 - c. Close door only as far as necessary for striker bolt to form an impression in clay or caulking compound as shown in Figure 5-19.

NOTE: Do not close door completely. Complete door closing will make clay removal very difficult.

- d. Measure striker impressions as follows: Striker head should be centered fore and aft as shown; however, some tolerances are allowed. In any alignment, it is important that minimum dimensions, as outlined in Figure 5-19 be strictly maintained. The following spacers are available as service parts and can be used individually or in combination to achieve the desired alignment.

1. 5/64" spacer - Part No. 4469196 or equivalent

2. 5/32" spacer - Part No. 4469197 or equivalent

Removal and Installation

1. Mark position of striker on body lock pillar using a pencil.
2. Insert tool J-23457, BT-7107 or equivalent into the star shaped tool recess in the head of the striker bolt and remove striker (refer to Fig. 5-20).
3. To install, reverse removal procedure. Make certain striker is positioned within pencil mark. If striker is positioned outside of pencil marks, touch-up any exposed unpainted surface on lock pillar adjacent to striker assembly. Torque striker bolt 34-46 foot pounds.

CAUTION: The door lock striker is an important attaching part in that it could affect the performance of vital components and systems, and/or could result in major repair expense. It must be replaced with one of the

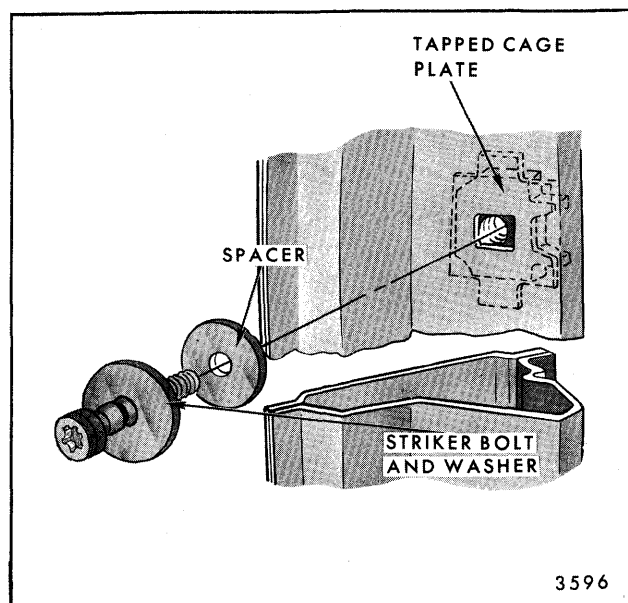


Fig. 5-20-Door Lock Striker Installation

same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of this part.

CAUTION: *Whenever a door has been removed and reinstalled or realigned, the door should not be closed completely until a visual check is made to determine if lock forkbolt will correctly engage with striker.*

ELECTRIC DOOR LOCK SOLENOID

Theory of Operation

The electric door lock system incorporates a solenoid for each door and a control switch for each front door. All doors lock and unlock simultaneously from the control switch(s) or manually from each door in the conventional manner. Each solenoid has an internal circuit breaker which (under extreme conditions) may require up to three minutes to reset. The door harness is routed in the power window harness conduit.

Removal and Installation

1. Raise door window, remove door trim panel assembly, detach inner panel water deflector and door insulator.

2. Disconnect wire harness from solenoid.
3. On front doors, remove inner panel to solenoid attaching screws, disconnect rod and remove through access hole (Fig. 5-24 of "Front Door" portion of this section).
4. On rear doors, remove electric solenoid to door inner panel attaching screws and connecting rod to door inside locking rod connecting link attaching clip. Remove through access hole (Fig. 5-34 of "Rear Door" portion of this section).
5. To install, reverse removal procedure.

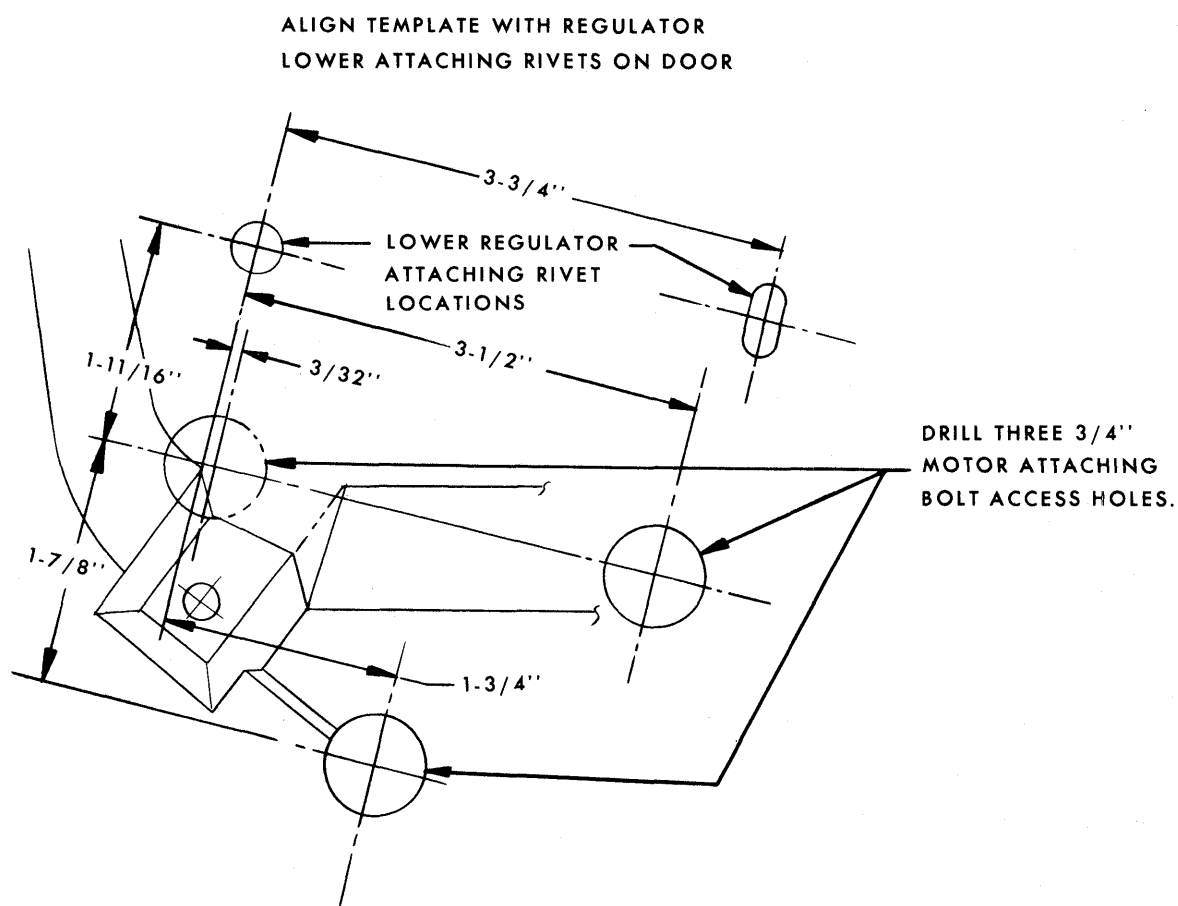
DOOR WINDOW REGULATOR ELECTRIC MOTOR

Theory of Operation

The power-operated window system incorporates an electric motor and an independent control switch for each door window, except driver's door. The driver's door incorporates an electric motor and a master window control switch (four button), permitting window operation of all windows from driver's position. The driver's door also incorporates a window blackout (cut-out) switch which permits normal operation of power windows from all switch locations when the blackout switch is in the normal (on) position. When the blackout switch is in the lock position, the windows will operate only from the master control switch.

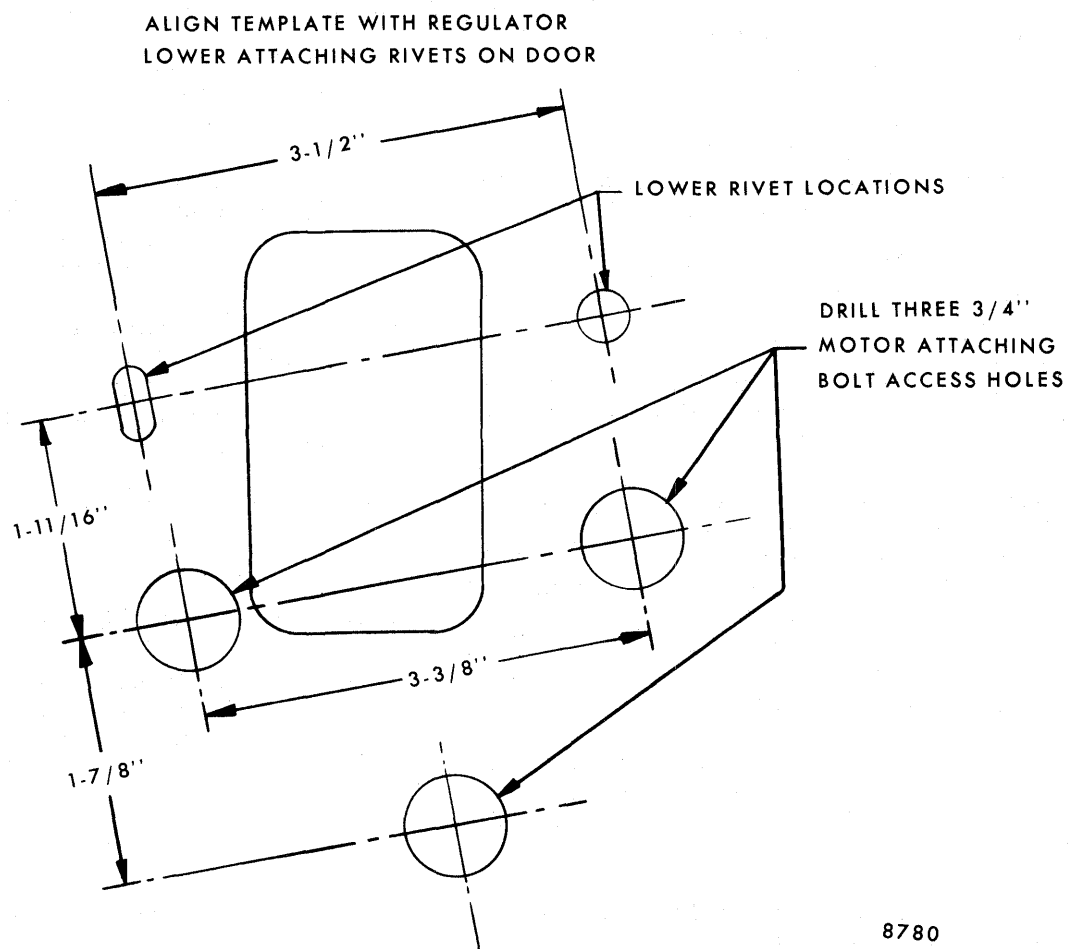
The electric motor assembly, which powers the electrically operated window regulators, is a twelve volt reversible direction motor with an internal circuit breaker and a self-locking gear drive. The motor is secured to the regulator assembly with bolts.

WARNING: THIS PROCEDURE CAN BE USED ONLY IF DOOR GLASS IS INTACT AND ATTACHED TO THE REGULATOR. THE REGULATOR LIFT ARMS ARE UNDER TENSION FROM THE COUNTERBALANCE SPRING AND THE WEIGHT OF THE DOOR GLASS IS REQUIRED TO NEUTRALIZE THE SPRING DURING MOTOR REMOVAL. IF DOOR GLASS HAS BEEN BROKEN OR REMOVED, THE SECTOR GEAR MUST BE SECURELY FASTENED TO REGULATOR BACK PLATE PRIOR TO MOTOR REMOVAL TO PREVENT SERIOUS INJURY. FOR MOTOR REMOVAL WHEN DOOR GLASS HAS BEEN BROKEN OR REMOVED, REFER TO THE FOLLOWING SECTION OF THIS MANUAL.



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Fig. 5-21-Window Regulator Lower Attaching Rivets Reference Point for Locating Window Motor to Regulator Attaching Bolts
- Front Door



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Fig. 5-22-Window Regulator Lower Attaching Rivets Reference Point for Locating Window Motor to Regulator Attaching Bolts
- Rear Door

Removal and Installation

1. Remove door trim assembly, door insulator and inner panel water deflector. Disconnect harness connector at motor.
2. Refer to Figures 5-21 and 5-22 and select the appropriate template for locating window motor to regulator attaching bolts by using window regulator to door inner panel attaching rivets as reference points.
3. Align regulator rivet locations specified on template with appropriate regulator attaching rivets on door. Secure template in place with a piece of tape.
4. Using a center punch, dimple the door inner panel at the center of each of the 3/4" holes to be drilled as indicated on the template.
5. Using a 3/4" hole saw, drill three 3/4" motor to regulator attaching bolt access holes as indicated.
6. Remove motor attaching bolts, lift motor to disconnect wire connector, and remove motor through access hole.

NOTE: Although window regulator lift arm is under tension of counterbalance spring, weight of window assembly prevents lift arm from moving. If necessary, window can be moved manually to clear access holes.

7. Prior to installation, lubricate the motor gear and regulator sector teeth.
8. After replacing motor and prior to trim installation, apply waterproof tape to seal any motor bolt access hole that is outside of the sealing area of the water deflector.

Removal and Installation - Glass Broken or Not Attached to Window Regulator

1. Remove window regulator as described in the "Front Door" portion of this section. In process of removal, gain access to motor harness connector and disconnect.

WARNING: STEP 2 MUST BE PERFORMED WHEN REGULATOR IS REMOVED FROM DOOR. THE REGULATOR LIFT ARMS ARE UNDER TENSION FROM THE COUNTERBALANCE SPRING AND CAN CAUSE SERIOUS INJURY IF THE MOTOR IS REMOVED WITHOUT LOCKING THE SECTOR GEAR IN POSITION.

2. As a bench operation, drill a 1/8" hole through the regulator sector gear and back plate (Fig. 5-23). **DO NOT** drill hole closer than 1/2" to edge of sector gear or back plate. Install a pan head sheet metal tapping screw (No. 10-12 x 3/4") in drilled hole to lock sector gear in position.
 3. Remove regulator motor attaching screws and remove motor assembly from regulator.
 4. Prior to installation, lubricate the motor drive gear and regulator sector teeth.
- NOTE:** The lubrication used must be cold weather approved to a minimum of minus 20 degrees fahrenheit.
5. Install regulator motor to regulator. Make sure the motor pinion gear teeth mesh properly with the sector gear teeth before installing the three motor attaching screws.
 6. Remove screw locking sector gear in a fixed position.
 7. Insert regulator into door in such a position that motor connector can be installed onto motor.
 8. Reinstall regulator into door.

DOOR HARDWARE LUBRICATION

The mechanical components of the door assembly are lubricated during assembly. If additional lubrication is required to any door hardware mechanism, lubricate with Fisk Bros. No. 777 Lo-Temp Lubriplate or equivalent.

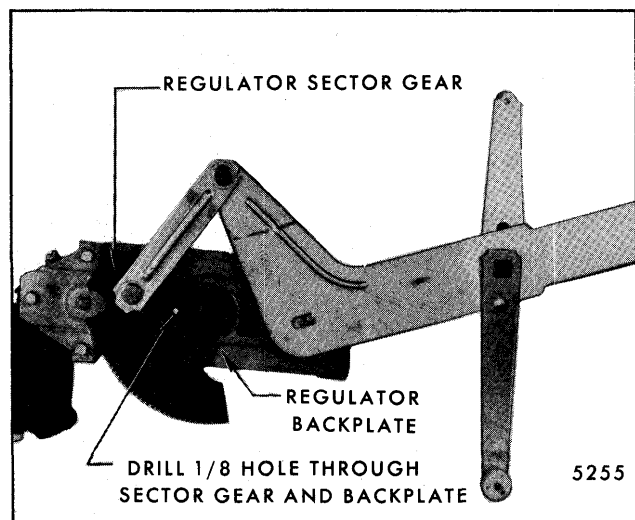


Fig. 5-23-Front Door Window Regulator Motor Removal

FRONT DOORS

DESCRIPTION

All "K" body doors are classified as "closed style" because they have a door upper frame.

Any work performed on door hardware usually requires removal of trim pad, door insulator and inner panel water deflector. The removal procedures for water deflectors and trim are covered in the preceding "Front and Rear Doors" and "Door Trim" sections.

Figures 5-24 and 5-25 are typical of front doors with the trim assembly and inner panel water deflector removed. These figures identify the component parts of the front door assembly and various attaching points.

FRONT DOOR HINGES

Description

All hinges are constructed of steel and incorporate a two stage hold-open feature in the lower hinge.

The front door is mounted to the front body hinge pillar with an upper and lower hinge. Figure 5-26 illustrates typical front door bolt-on hinge installation. All "K" bodies use "swing-in" type hinges, which means the leading edge of the door swings inboard of the front fender when opened.

Front Door Hinge Adjustment

Door adjustments are provided through use of floating anchor plates in door and front body hinge pillars. When checking door for alignment, and prior to making any adjustments, mark location and remove door lock striker from body to allow door to hang freely on its hinges.

NOTE: When making door adjustments, refer to door lock striker engagement specifications in the "Front and Rear Door" portion of this section.

1. Adjustments provided at body hinge pillars - up and down and fore and aft.

NOTE: If REARWARD adjustment of either front door is made, replace the jamb switch. (Refer to Electrical Section of this manual for door jamb switch replacement.)

2. Adjustments provided at door hinge pillars - in and out.
3. For removal or adjustment of all front door hinge to body attaching bolts, use tool J-24353 - 1/2" wrench (or equivalent) as shown in Figure 5-27. After hinge adjustment, torque attaching bolts 17 to 22 foot pounds.

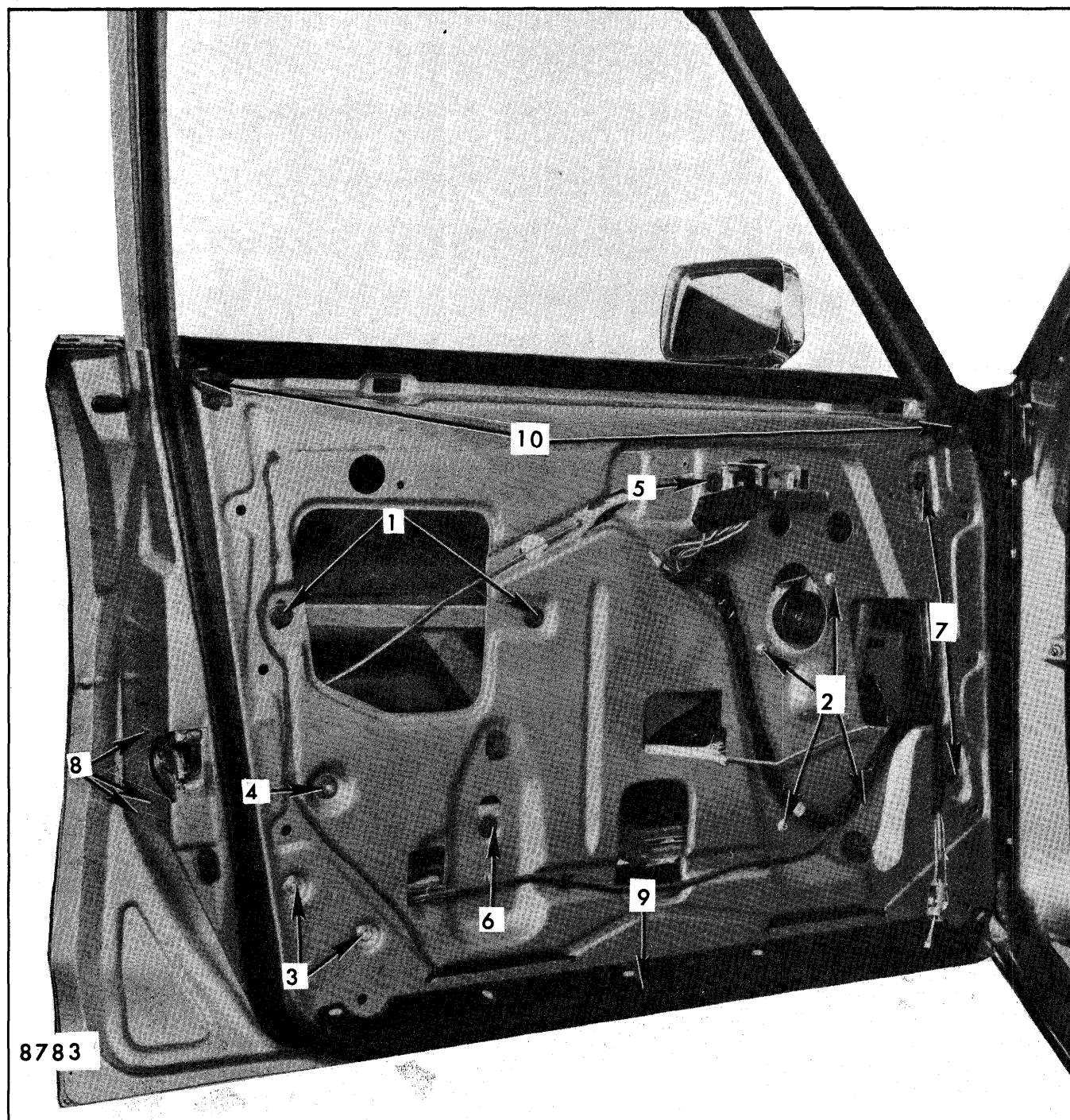
Door Removal and Installation

Although the door can be removed from the body with or without the hinges attached to the door, it is recommended that when removing the door only, remove the door from the hinges. Accessibility to the door side hinge bolts is better than to the body side bolts.

1. Prior to loosening any hinge bolts, mark position of hinge on door to facilitate adjustment when reinstalling door on hinge.
2. Remove trim pad and door insulator and detach inner panel water deflector sufficiently to disconnect power accessory feed harness assemblies, and remove same from door.
3. With aid of a helper, support door in open position and remove upper and lower hinge to door hinge pillar attaching bolts (Fig. 5-26).
4. To install, reverse removal procedure. Adjust door as outlined in subsequent adjustment procedure. Torque hinge attaching bolts 17 to 22 foot pounds.

Hinge Removal

1. Support door in the full-open position and remove hinge-to-door and body hinge pillar attaching bolts (Fig. 5-26).
2. Loosen body hinge pillar bolts on remaining hinge as required. Remove affected hinge from body.
3. To install, reverse removal procedure. Prior to installation of hinge, apply a coat of heavy-bodied sealer to surface of hinge that contacts door and body hinge pillar for protection against corrosion. Align door as subsequently described. Torque hinge attaching bolts 17 to 22 foot pounds.

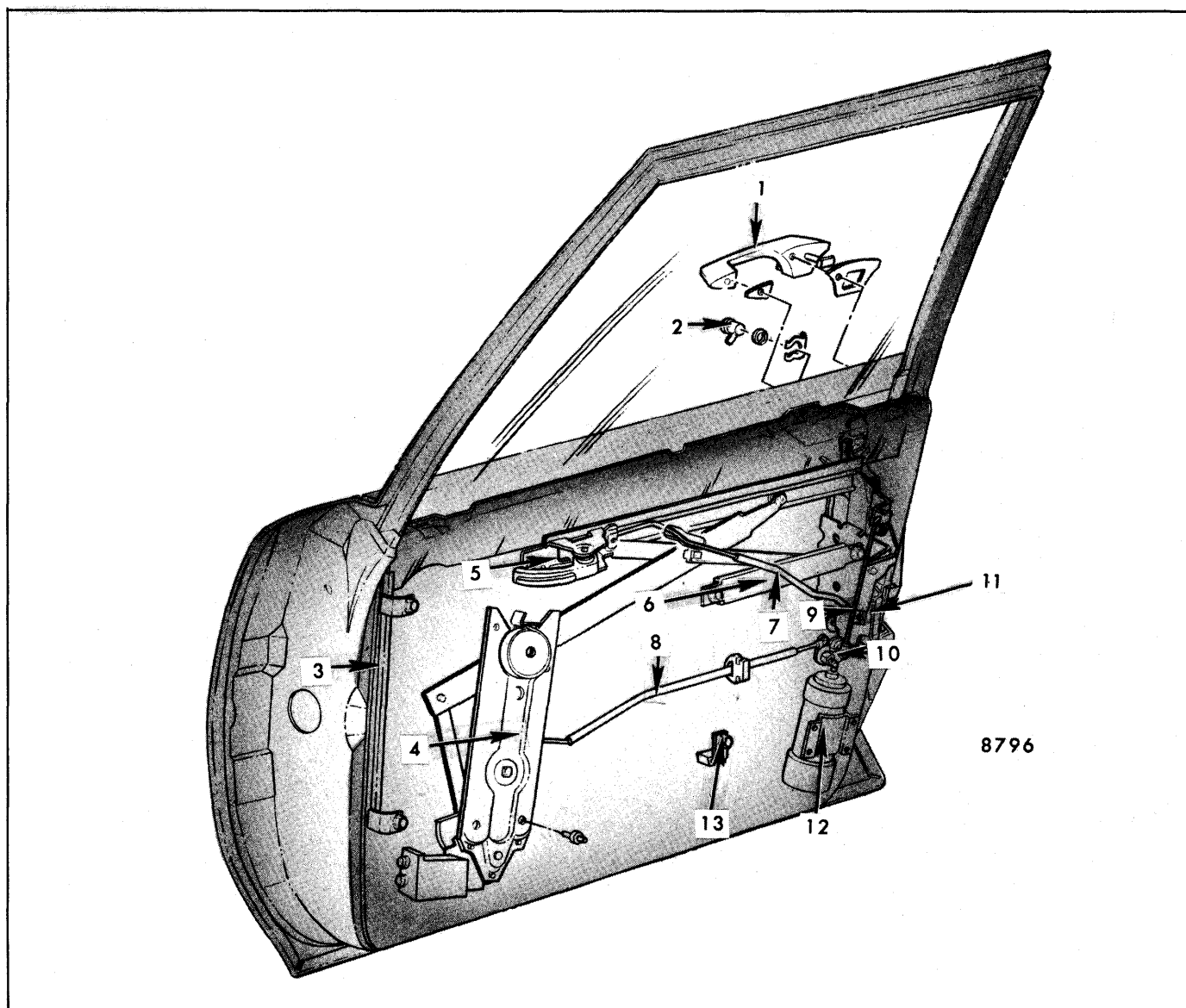


1. Inner Panel Cam Attaching Screws
2. Window Regulator Attaching Rivets
3. Power Door Lock Solenoid Attaching Screws
4. Locking Rod Bell Crank Attaching Nut

5. Door Lock Remote Control Attaching Screw
6. Down Travel Stop Attaching Screw
7. Front Window Guide Attaching Screws
8. Door Lock Assembly Attaching Screws (3)

9. Door Bottom Auxiliary Sealing Strip
10. Inner Panel Belt Sealing Strip Filler

Fig. 5-24-Front Door Hardware



- | | | |
|-------------------------------------|--|------------------------------|
| 1. Door Outside Handle | 6. Inner Panel Cam | 10. Bell Crank |
| 2. Lock Cylinder | 7. Remote Control to Lock Connecting Rod | 11. Door Lock Assembly |
| 3. Front Glass Run Channel Retainer | 8. Inside Locking Rod | 12. Power Door Lock Solenoid |
| 4. Window Regulator | 9. Solenoid Bell Crank to Lock Attaching Rod | 13. Down Travel Stop |
| 5. Door Lock Remote Control Handle | | |

Fig. 5-25-Front Door Hardware

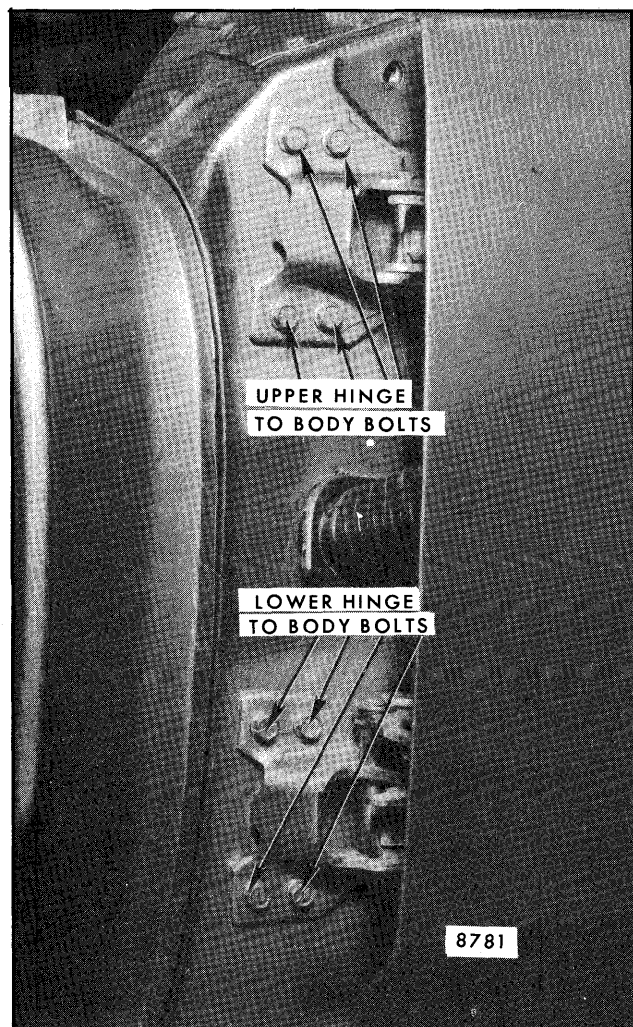


Fig. 5-26-Front Door Hinge Attachment

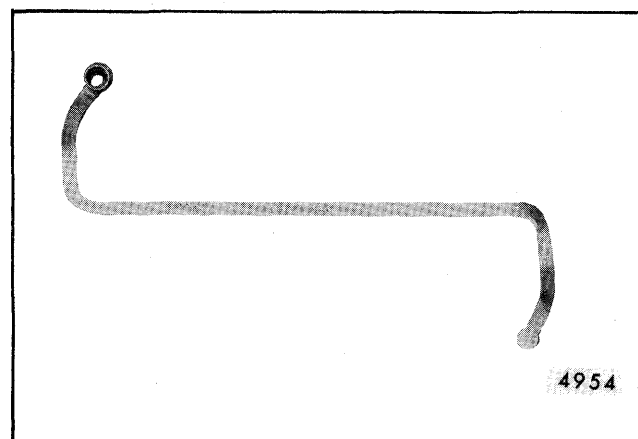


Fig. 5-27-Front Door Hinge Tool J-24353 or Equivalent

INSIDE LOCKING ROD

Removal and Installation

1. Remove door trim assembly and peel inner panel water deflector and insulator back sufficiently to gain access to spring clip at door lock locking lever.
2. Disengage inside locking rod from door lock rocker switch (Refer to "Door Trim" portion of this section for removal).
3. Disengage spring clip securing locking rod to door lock locking lever as previously described in the "Front and Rear Door" portion of this section.
4. Lift locking rod out through door inner panel access hole.
5. To install, reverse removal procedure.

FRONT DOOR LOCK REMOTE CONTROL HANDLE ASSEMBLY AND CONNECTING ROD

Description

The "K" body utilizes a pull-in type remote control and handle assembly as shown in Figure 5-24. The pull type remote control assembly is secured to the door inner panel by an attaching screw. The remote is attached to the inboard surface of the inner panel.

Removal and Installation

1. Raise door window, remove door trim panel and detach inner panel water deflector and door insulator.
2. Remove screw securing remote control to door inner panel.
3. Pivot remote control to disengage lock connecting rod and remove remote control assembly.
4. If remote control to lock connecting rod is to be removed, refer to "Front and Rear Door" section for method of disengaging spring clip at lock end of rod.
5. To install, reverse removal procedure.

FRONT DOOR LOCK ASSEMBLY

Description

A fork bolt lock design is utilized which includes a safety interlock feature. The door is secured in a

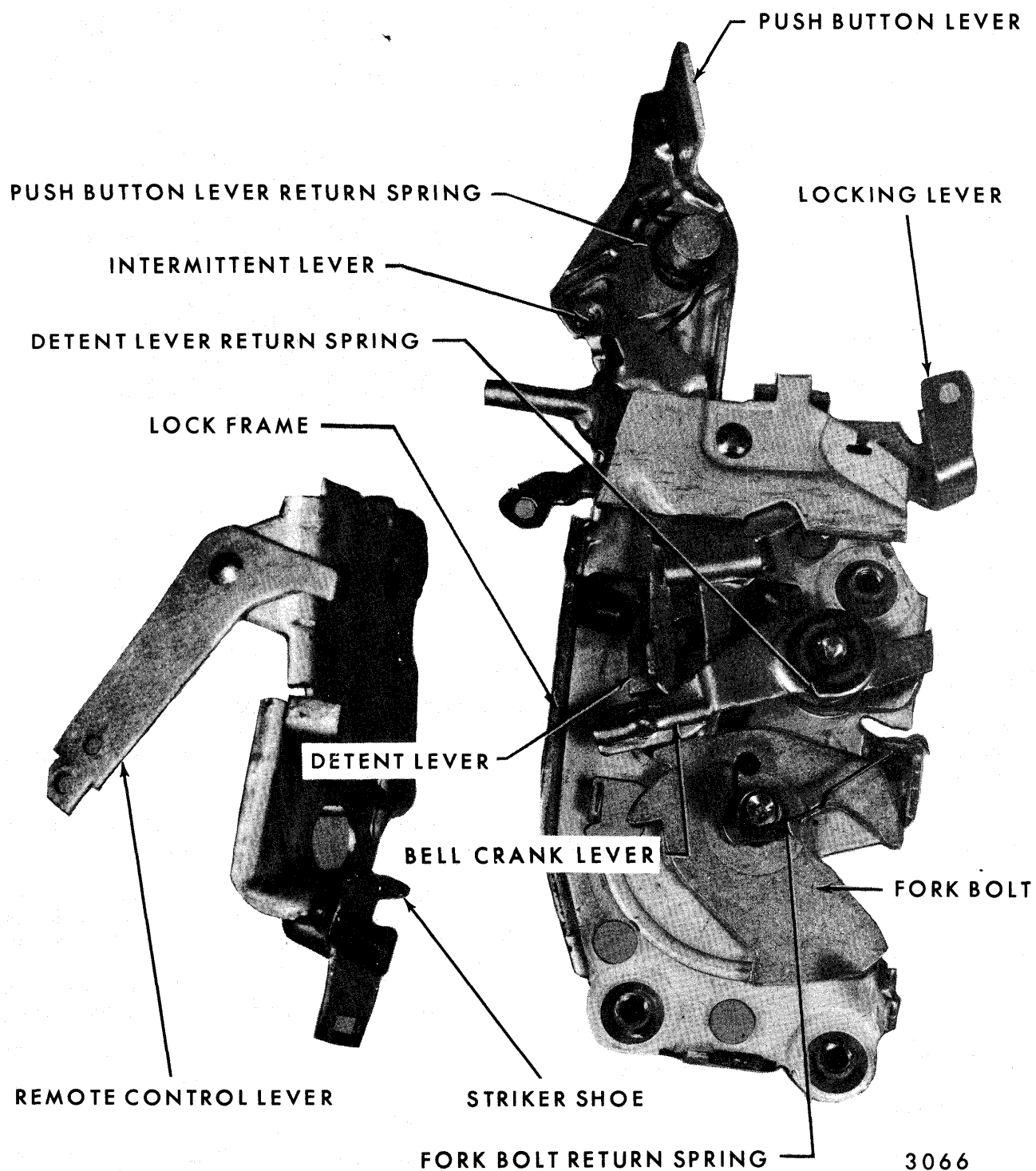


Fig 5-28-Front Door Lock Assembly

closed position when the door lock fork bolt snaps over and engages the striker bolt. Front and rear doors can be locked from the inside by depressing the passenger guard door lock button located on the door armrest switch plate. All doors can be locked from the outside by simply depressing the interior door lock button and closing the door. The front doors can also be locked by using the appropriate key.

CAUTION: Figure 5-28 depicts the front door lock assembly which can be used for identifying locking problems. Do not attempt repairs to correct lock discrepancies. Make corrections through replacement of lock assembly.

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector and door insulator.
2. Disengage spring clips at inside remote handle to lock and inside locking rod to bell crank. Disengage spring clip from solenoid to lock lever rod. Refer to "Front and Rear Doors" portion of this section for spring clips removal procedure.
3. Remove door lock solenoid attaching screws ("3", Fig. 5-24) and bell crank attaching nut ("4", Fig. 5-24). Remove solenoid and bell crank as an assembly ("10" and "12", Fig. 5-25).
4. Mark location and remove inner panel cam attaching bolts ("1", Fig. 5-24), then remove inner panel cam.
5. Remove three (3) door lock attaching screws, slide lock down and rotate from behind rear run channel, then remove through large access hole in door inner panel.
6. To install, reverse removal procedure. Torque door lock attaching screws to 80 to 100 inch pounds.

FRONT DOOR LOCK CYLINDER ASSEMBLY

Removal and Installation

1. Remove door trim panel, raise door window and detach inner panel water deflector. On styles equipped with anti-theft system disconnect wire at door guard beam (Fig. 5-31).
2. With a screwdriver or similar tool, slide lock cylinder retaining clip (on door outer panel) out

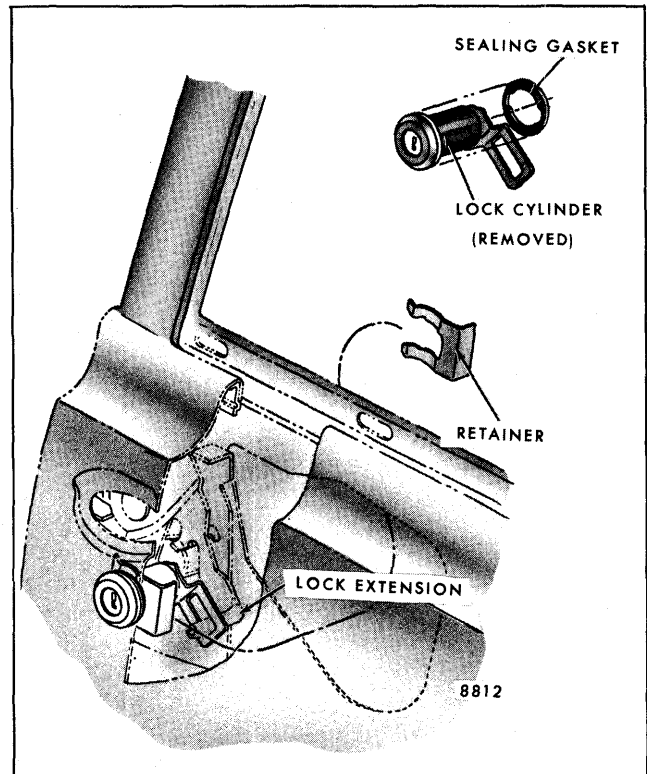


Fig. 5-29-Door Lock Cylinder Removal

of engagement and remove lock cylinder from door (Fig. 5-29).

3. To install, reverse removal procedure.

Disassembly and Assembly

1. Remove lock cylinder from door as previously described.
2. With a pointed tool, disengage pawl retaining clip and remove pawl (Fig. 5-30).
3. With a flat-bladed tool, straighten out crimped-over edges of lock cylinder housing scalp and remove scalp and lock cylinder from housing.

NOTE: Refer to General Information Index (Section 1 of this manual) for lock cylinder coding.

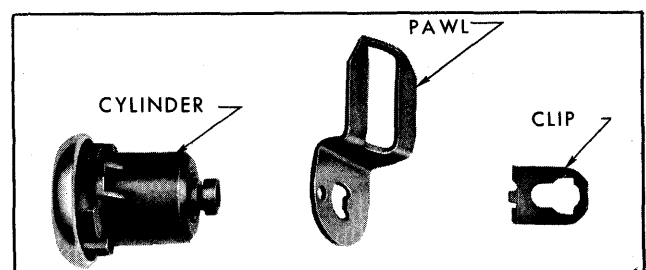


Fig. 5-30-Door Lock Cylinder Assembly

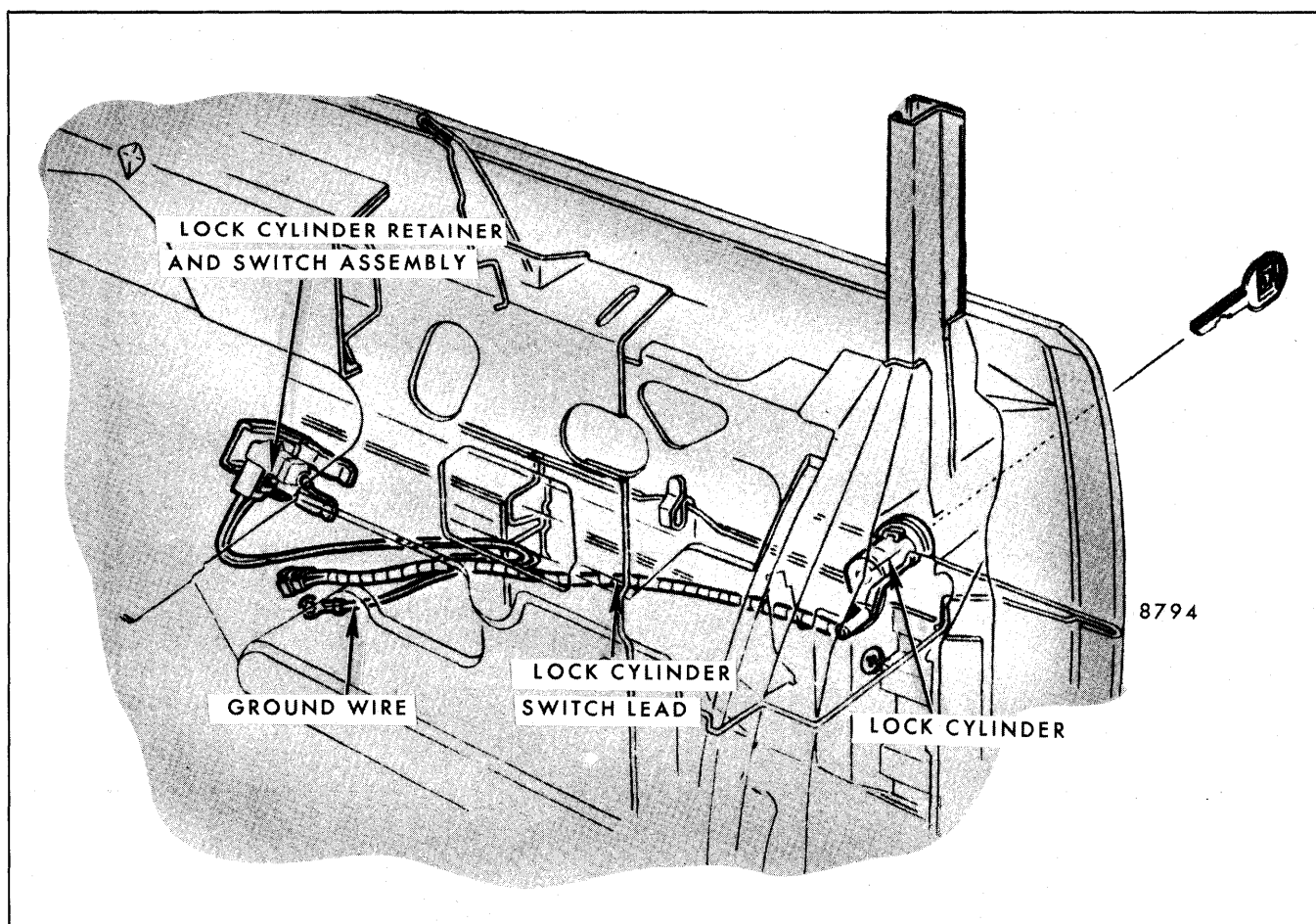


Fig. 5-31-Anti-Theft Door Lock Cylinder Assembly

4. To install, reverse removal procedure.

NOTE: Lock cylinder housing scalp is usually damaged in removal procedure and, therefore, must be replaced. Replacement scalps are available as service parts.

DOOR OUTSIDE REMOTE CONTROL MIRROR

Description

The standard right and left side remote control mirrors can be adjusted from the interior of the car by moving the appropriate control lever. The left mirror control is located in the left front door armrest. The right control is located on the instrument panel.

Remote Mirror Face Replacement

1. To remove a scratched, broken, stained, etc., mirror face from the mirror frame, tape, then break the mirror glass and remove the broken glass and fiber pad from the mirror frame.

CAUTION: Protect painted surface on door assembly when breaking mirror face to remove from mirror frame.

2. Wipe inside of mirror frame clean.
3. To install replacement mirror faces, remove paper backing from mirror face and center mirror in mirror frame. Then press firmly to ensure adhesion of the mirror face to the mirror frame.

Removal and Installation - Left Side

1. Remove door trim panel assembly, door insulator and inner panel water deflector as previously described in this section of manual. Then, detach remote cable from retaining tab on outer panel belt reinforcement (Fig. 5-32).
2. Remove mirror base to door outer panel stud nuts (Fig. 5-32) and remove mirror and cable assembly from door.
3. To install, reverse removal procedure.

Removal and Installation - Right Side

1. Remove door trim panel assembly, door insulator and inner panel water deflector as previously described in "Door Trim" portion of this section of manual. Then, detach remote cable from retaining tab in instrument panel as described in Motor Division Service Manual. Remove rear shroud side trim panel.
2. Feed remote cable through shroud and rubber conduit between door and shroud.
3. Remove mirror base to door outer panel stud nuts (Fig. 5-32) and remove mirror and cable assembly from door.
4. To install, reverse removal procedure. Operate mirror at remote end several times before installing instrument panel components or body trim.

FRONT DOOR INNER PANEL CAM

Removal and Installation

1. Remove door trim panel assembly and detach

door insulator and inner panel water deflector sufficiently to gain access to the inner panel cam.

2. With window in raised position, remove inner panel cam attaching screws and slide cam off regulator balance arm roller ("1", Fig. 5-24).
3. To install, reverse removal procedure.

NOTE: The rear end of the cam has provision for up and down adjustment to correct a "cocked" window (not parallel with top of door upper frame).

FRONT DOOR WINDOW ASSEMBLY

Description

The door window assembly consists of a frameless piece of solid tempered safety plate glass bonded to a lower sash channel which incorporates a lower sash channel cam. With this design, the door glass, lower sash channel and cam are removed from the door as a unit and replacement glass is installed as a bench operation.

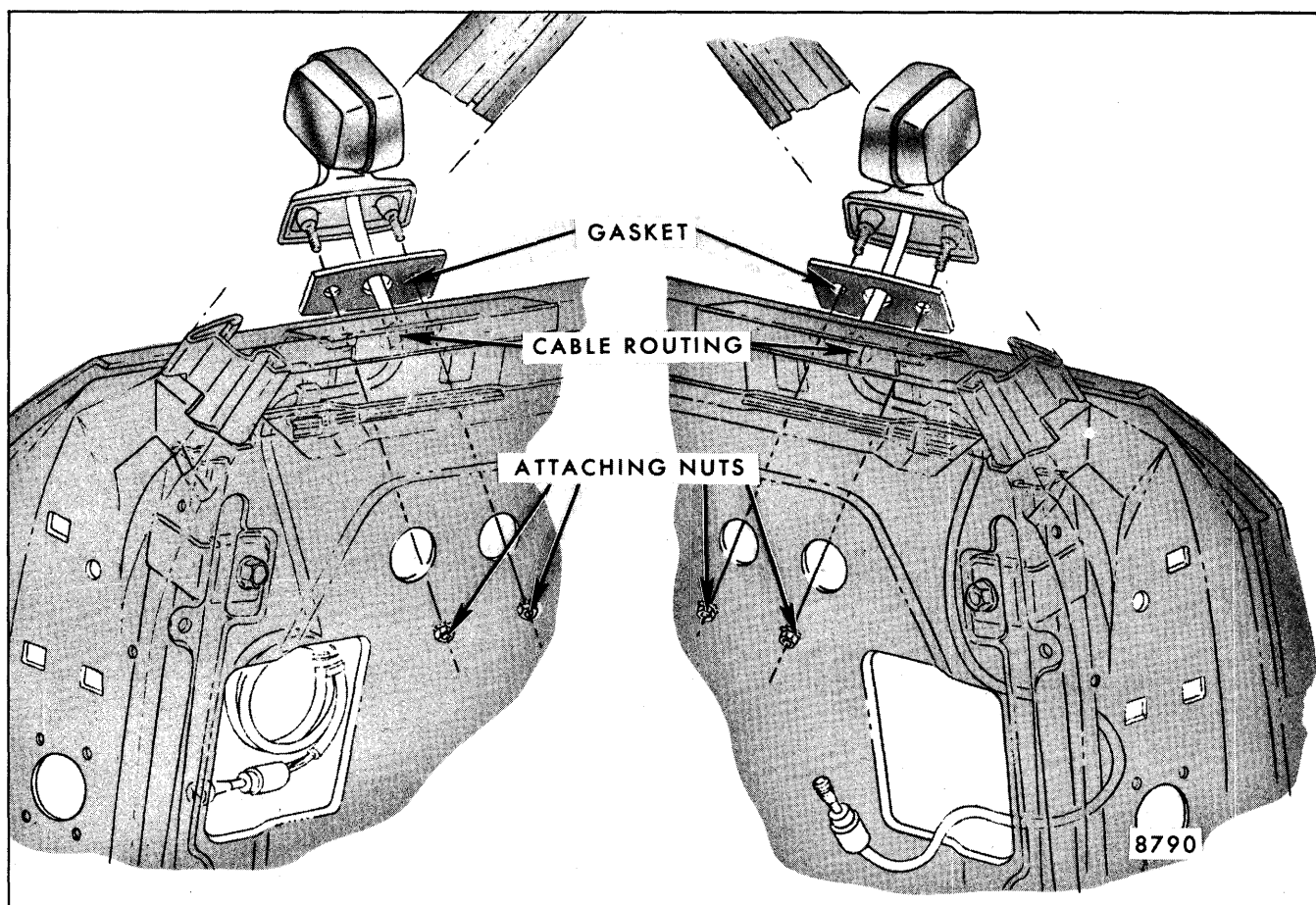


Fig. 5-32-Door Outside Mirrors, Right and Left Side

Diagnosis and Adjustment

1. **WINDOW NOT PARALLEL ALONG UPPER EDGE WITH DOOR UPPER FRAME** - A rotated window condition (glass cocked in opening) can be corrected by loosening door window inner panel cam attaching screws ("1", Fig. 5-24) and raising or lowering front edge of glass in relation to rear edge of glass, as required, to parallel upper edge of glass with door upper frame. Torque inner panel cam attaching screws to 60 to 90 inch pounds.
2. **WINDOW TOO HIGH OR TOO LOW, WHEN IN A DOWN POSITION, IN RELATION TO THE BELTLINE** - To adjust window down-travel, loosen window down-travel bumper support ("6", Fig. 5-24) and raise or lower window to desired full-down glass height. Then, position bumper support against lower edge of glass and tighten attaching screw to 60 to 90 inch pounds.

NOTE: After any adjustment has been performed, all previously loosened hardware attachments must be torqued to 60 to 90 inch pounds.

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector, and door insulator.
2. Mark location and remove inner panel cam attaching bolts ("1", Fig. 5-24), then remove inner panel cam.
3. Lower glass to half-down position and tip front of glass down 45 degrees to remove from front run channel. Slide glass forward to disengage rear lift arm roller.
4. Lift glass up and back at 45 degree angle until front roller is disengaged, then straighten glass in opening and lift out of door inboard of upper frame.
5. To install, reverse removal procedure. Adjust window for proper alignment. Torque inner panel cam attaching screws to 60 to 90 inch pounds.

FRONT DOOR WINDOW REGULATOR

Removal and Installation

1. Remove front door trim panel assembly, inner panel water deflector, and door insulator.

2. Mark location and remove inner panel cam attaching screws ("1", Fig. 5-24), then remove inner panel cam.
3. Disengage spring clip from remote handle to door lock and remove remote handle and rod assembly.
4. Lower window to half-down position, then remove window as previously described.

WARNING: THE REGULATOR AND MOTOR MUST BE REMOVED AS AN ASSEMBLY WHEN THE WINDOW IS REMOVED OR DISENGAGED FROM THE REGULATOR LIFT ARMS. THE REGULATOR LIFT ARMS, WHICH ARE UNDER TENSION FROM THE COUNTERBALANCE SPRING, CAN CAUSE SERIOUS INJURY IF THE MOTOR IS REMOVED FROM THE REGULATOR WITHOUT LOCKING THE SECTOR GEARS IN POSITION.

5. Drive out rivet center pin with punch and drill out four (4) regulator attaching rivets with a 1/4" drill bit; slide assembly rearward to allow disconnect of regulator motor connector. Feed arms of regulator through large access hole first; then complete removal of regulator.
6. To install regulator, reverse removal procedure. Attach to inner panel with attaching screw, Part No. 9419723 or equivalent. Place "J" nut (Part Nos. 1494257, 3916700 or equivalent) over each attaching hole in regulator back plate. Torque attaching screws to 72 inch pounds.

FRONT DOOR WINDOW FRONT GLASS RUN CHANNEL RETAINER

Removal and Installation

1. Remove front door trim panel assembly, inner panel water deflector and door insulator.
2. Remove door window assembly as previously described.
3. Remove glass run channel from retainer, then remove retainer to inner panel attaching screws ("7", Fig. 5-24) and remove retainer.
4. To install, reverse removal procedure. Torque previously removed attaching screws to 60 to 90 inch pounds.

FRONT DOOR WINDOW DOWN TRAVEL SUPPORT

Removal and Installation

1. Remove door trim panel, door insulator and water deflector as previously described.
2. Raise door window to full-up position and mark down travel support attaching screw location on inner panel ("6", Fig. 5-24).
3. Remove support attaching screw and remove support through large access hole in the door inner panel.
4. To install, reverse removal procedure. Position support screw to previously marked location. Torque attaching screw to 60 to 90 inch pounds.

FRONT DOOR WINDOW GLASS RUN CHANNEL

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector and door insulator.
2. Remove door window assembly as previously described in this section.
3. Starting at upper corner of door upper frame pinch sides of run channel together and pull out of upper frame.
4. To install, reverse removal procedure.

REAR DOORS

DESCRIPTION

Information in this section concerns operations applicable to rear doors only. Procedures for removal of water deflectors, door handles, weatherstrips, door trim or door moldings are outlined in the "Front and Rear Doors", "Door Trim" and "Door Molding" portions of this section - see index.

Illustrations 5-34 and 5-33 are typical of rear doors with the trim assembly and inner panel water deflector removed. These figures identify the component parts of the rear door assembly and various attaching points.

REAR DOOR HINGES

Description

All rear door hinges are constructed of steel. A two stage hold-open feature is incorporated in the lower hinge.

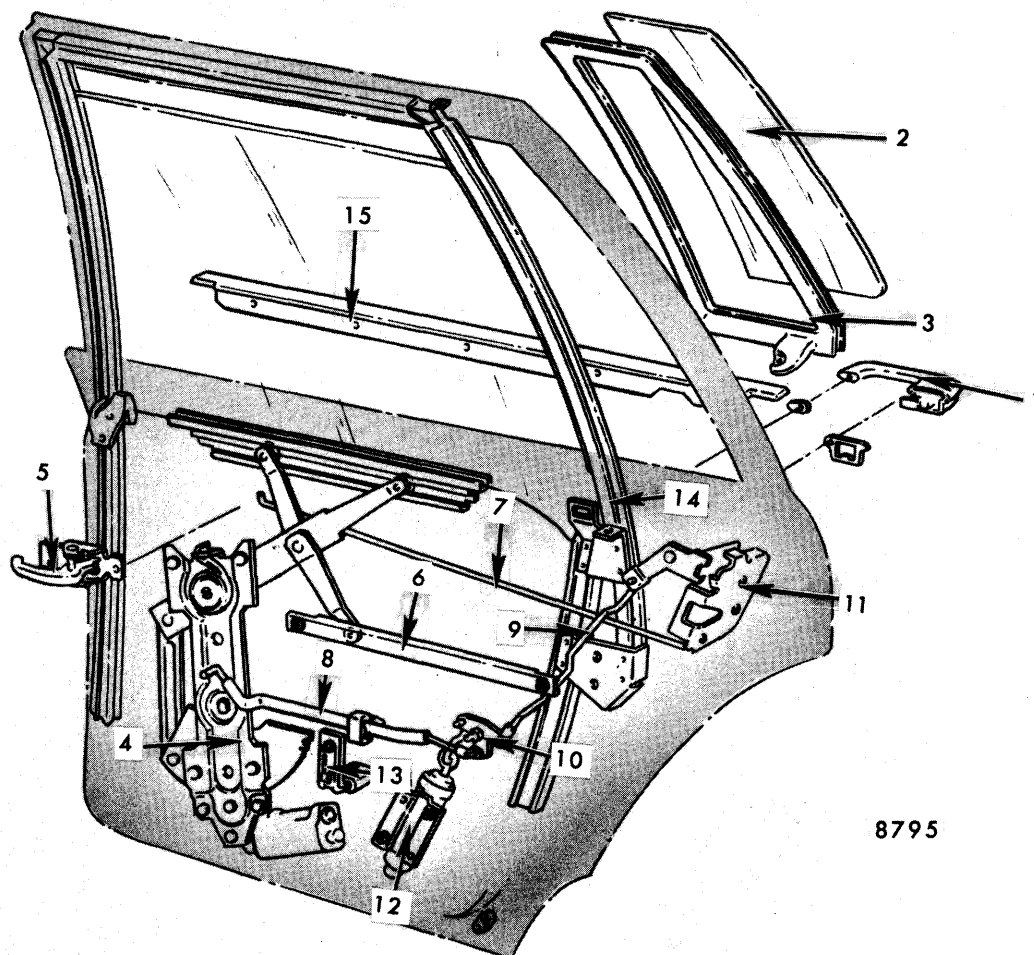
Adjustments

In-or-out and up-or-down adjustment is available at the door side hinge attaching screws. Fore-or-aft and a slight up-or-down adjustment is available at the body side (center pillar) hinge attaching screws.

Door Removal and Installation

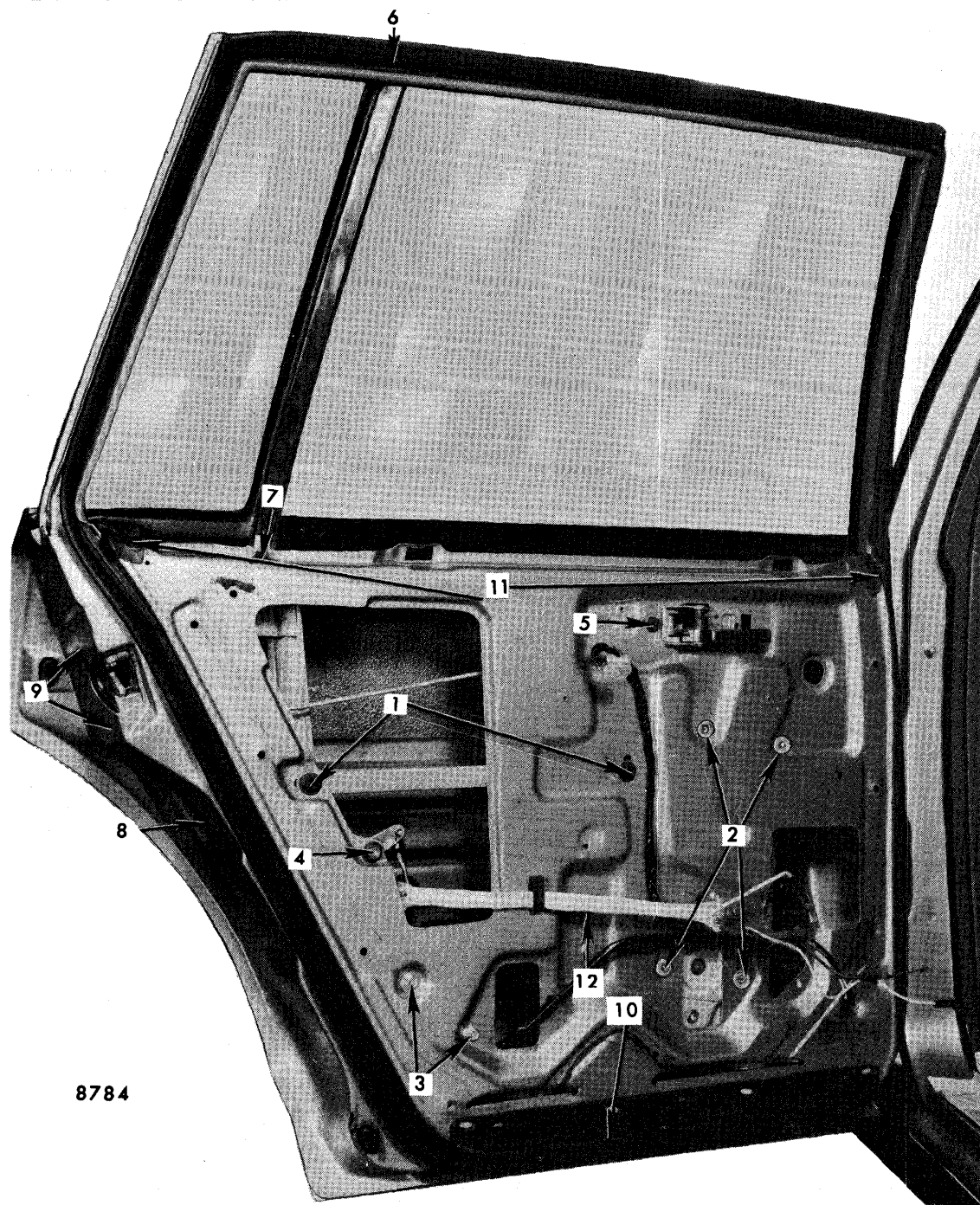
Doors can be removed by either removing the door from the hinges or by removing the door and hinges as an assembly from the center pillar.

1. Remove hinge cover assembly.
2. Prior to loosening any hinge bolts, mark location of hinges on door or center pillar, depending on removal method being used.
3. Remove door trim assembly, door insulator and inner panel water deflector; then, disconnect wire harness connector from regulator motor and wire harness connector from electric lock solenoid.
4. Remove electric conduit from door; then, remove wire harness from door through conduit access hole.
5. With door properly supported, loosen upper and lower hinge attaching screws from door or center pillar and remove door from body. Figure 5-35 is typical of rear door hinge attachment.
6. Prior to reinstalling the door to the body, clean off old sealer at hinge attaching areas and apply a coat of heavy-bodied sealer to surface of hinge that mates with center pillar or door hinge pillar to prevent corrosion.
7. With aid of a helper, lift door into position and



- | | | | |
|---|--|------------------------------|--|
| 1. Door Outside Handle | 6. Inner Panel Cam | 10. Bell Crank | 14. Stationary Vent Division and Glass Run Channel |
| 2. Stationary Vent Glass | 7. Remote Control to Lock Connecting Rod | 11. Door Lock Assembly | 15. Door Outer Belt Sealing Strip |
| 3. Stationary Vent Glass Rubber Channel | 8. Inside Locking Rod | 12. Power Door Lock Solenoid | |
| 4. Window Regulator | 9. Solenoid Bell Crank to Lock Attaching Rod | 13. Down Travel Support | |
| 5. Door Lock Remote Control Handle | | | |

Fig. 5-33-Rear Door Hardware



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- | | | | |
|--|--|--|---|
| 1. Inner Panel Cam
Attaching Screws | 4. Locking Rod Bell
Crank Attaching Nut | 7. Vent Division Channel
Attaching Screw | 10. Door Bottom
Auxiliary Sealing
Strip |
| 2. Window Regulator
Attaching Rivets | 5. Door Lock Remote
Control Attaching
Screw | 8. Vent Division Channel
Lower Attaching
Screw | 11. Inner Panel Belt
Sealing Strip Filler |
| 3. Power Door Lock
Solenoid Attaching
Screws | 6. Vent Division Channel
Upper Attaching
Screw | 9. Door Lock Assembly
Attaching Screws (3) | 12. Down Travel Support
Attaching Screw |

Fig. 5-34-Rear Door Hardware

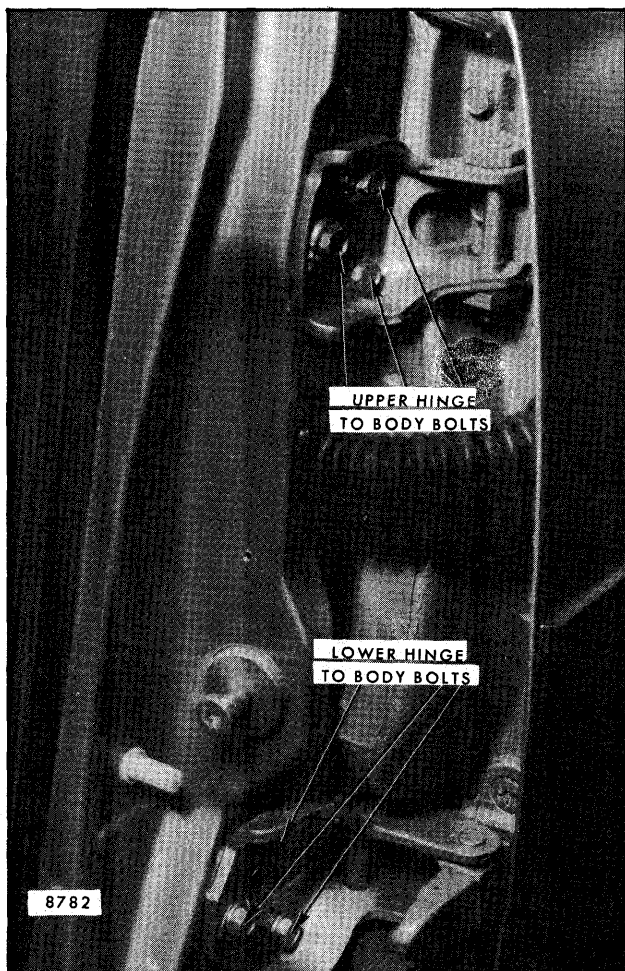


Fig. 5-35-Typical Rear Door Hinge Installation

loosely install hinge screws. Align hinges within pencil marks previously made and tighten hinge screws.

8. Install all previously removed parts and check door for proper alignment.

NOTE: When replacing or adjusting door hinges, torque to 14 to 22 foot pounds.

Hinge Removal and Installation

1. If both hinges are to be removed, remove rear door as previously described. Mark position of hinge on door or center pillar depending on which door removal method was used and remove hinge attaching screws.
2. With door properly supported, remove upper or lower hinge to door and center pillar attachments and remove hinge from door.
3. To install, reverse removal procedure. Apply a

coat of heavy-bodied sealer to surface of hinge that mates with the center pillar and door hinge pillar to prevent corrosion. Adjust door as previously outlined.

NOTE: When replacing or adjusting door hinges, torque to 14 to 22 foot pounds.

REAR DOOR LOCK REMOTE CONTROL

Description

There is one basic type of door lock remote control-the "pull-in" type (Fig. 5-34) which rotates inboard when actuated. The remote control is secured to the door inner panel by one attaching screw, and is mounted on the inboard surface of the door inner panel.

Removal and Installation

1. Remove rear door trim panel assembly, door insulator and inner panel water deflector.
2. Remove remote control attaching screw.
3. Pivot remote to disengage it from remote control to lock connecting rod and remove remote control from door.
4. To install, reverse removal procedure. Make certain anti-rattle clip on lock connecting rod is properly positioned.

REAR DOOR LOCK ASSEMBLY

Description

The "K" body uses a fork bolt lock design which includes a safety interlock feature. Where necessary, striker spacers should be used to ensure satisfactory lock striker engagement. Refer to "Front and Rear Door" section for spacer usage.

Rear doors can be locked from the inside by depressing the passenger guard door lock button located on the door armrest switch plate. Doors can be locked from the outside by simply depressing the interior door lock button and closing the door.

CAUTION: Figure 5-36 depicts the rear door lock assembly which can be used for identifying locking problems. Do not attempt repairs to correct lock discrepancies. Make corrections through replacement of lock assembly.

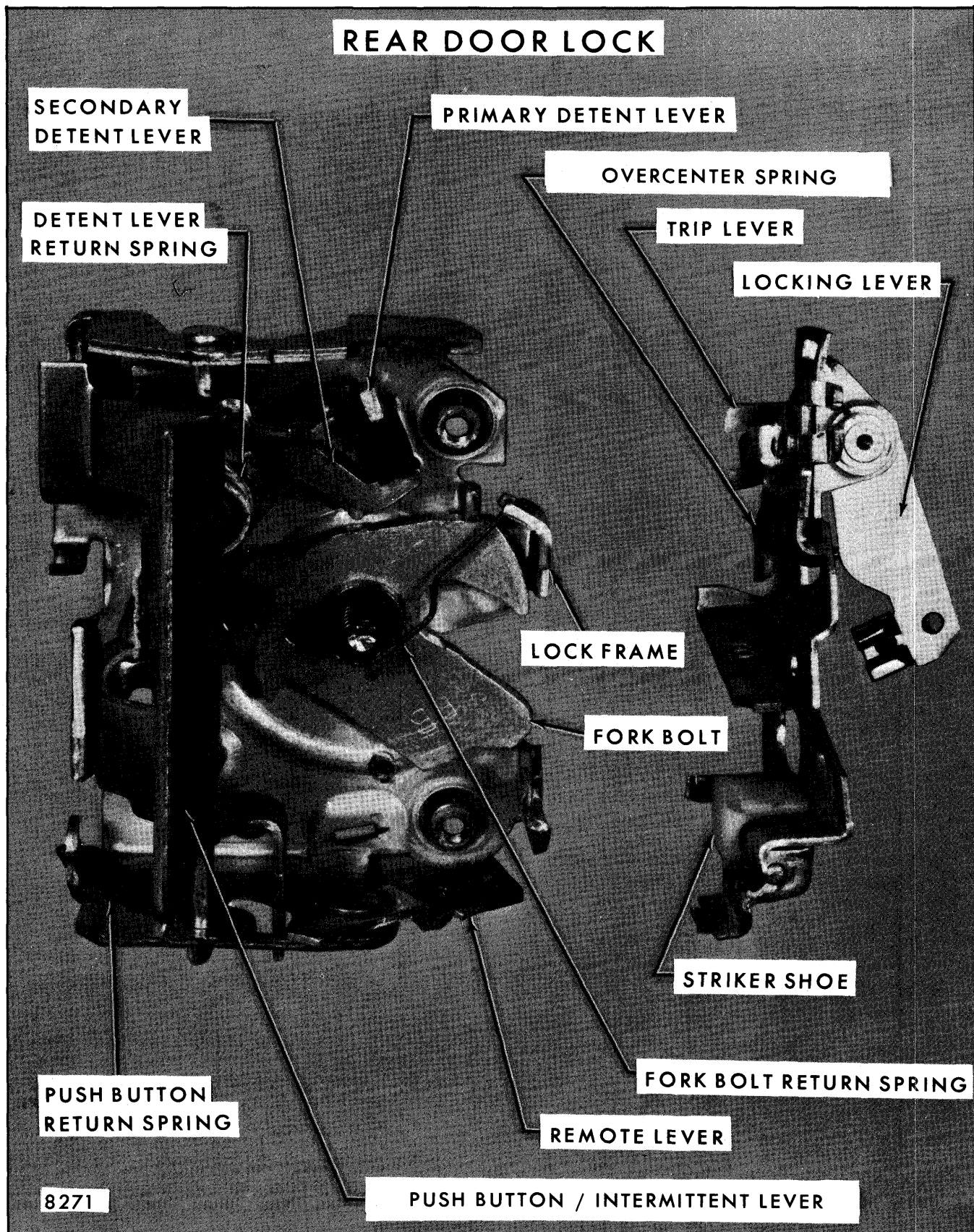


Fig. 5-36-Rear Door Lock Assembly

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector and door insulator.
2. Mark location and remove inner panel cam attaching screws ("1", Fig. 5-34), then remove inner panel cam.
3. Lower window to full-down position, then working through large access hole disengage remote control connecting rod and inside locking rod bell crank rod from spring clips on door lock. (For clip disengagement refer to "Door Lock Spring Clips" in "Front and Rear Door" portion of this section.) Disconnect and remove remote handle and connecting rod assembly.
4. Loosen rear door stationary vent division channel attachments ("6,7,8", Fig. 5-34), pull channel forward at top and remove vent window assembly; then, pull the channel full forward at the bottom.
5. Remove three (3) door lock attaching screws ("9", Fig. 5-34) and remove lock.
6. To install, reverse removal procedure. Torque door lock attaching screws to 80 to 100 inch pounds.

REAR DOOR INNER PANEL CAM

Removal and Installation

1. Remove door trim assembly, inner panel water deflector and door insulator. Mark location and remove inner panel cam attaching screws ("1", Fig. 5-34). Disengage cam from regulator balance arm roller and remove cam from door through access hole.
2. To install, reverse removal procedure. Adjust cam attaching screws to previously marked location for proper window operation. Correct adjustment of cam will prevent a rotated (cocked) door window.
3. Torque inner panel cam attachments to 60 to 90 inch pounds.

REAR DOOR WINDOW STATIONARY VENT DIVISION CHANNEL

Description

The stationary vent division channel is held in place

by one division channel to door upper frame attaching screw, one lower attaching screw at the door belt and one attaching screw in the rear door lock pillar below the door lock opening. This assembly acts as a rear door window rear glass run channel and also holds the stationary vent window in proper position.

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector and door insulator.
2. Remove stationary vent division channel attaching screws, items "6" at top of door upper frame, "8" in door lock pillar, "7" in door inner panel at belt, as shown in Figure 5-34.
3. Lower glass to full-down position. Pull channel forward at top to disengage and remove vent glass.
4. Raise glass to full-up position. Disengage channel from door upper frame and lift top of channel outboard of frame at rear until bottom of channel can be removed through large access hole.
5. Feed channel out of access hole, bottom first.
6. To install, reverse removal procedure. Tighten channel attaching screws ("7" and "8", Fig. 5-34) to 60 to 90 inch pounds.

REAR DOOR WINDOW STATIONARY VENT ASSEMBLY

Description

The rear door stationary vent is set within a rubber channel and held in place by pressure of the stationary vent division channel.

Removal and Installation

1. Remove door trim panel, door insulator and water deflector.
2. Lower window to full-down position.
3. Remove stationary vent division channel attaching screws, ("6", "7" and "8", Fig. 5-34).
4. Pull stationary vent division channel forward; then, pull glass and rubber channel assembly forward until free of upper frame and remove.

5. To install, reverse removal procedure. Torque attaching screws ("7" and "8", Fig. 5-34) 60 to 90 inch pounds.

REAR DOOR WINDOW ASSEMBLY

Description

The rear door window assembly consists of a frameless solid tempered safety plate glass window and a urethane bonded lower sash channel assembly.

Adjustments

Adjustment has been provided to relieve a binding door glass due to misalignment of the ventilator division channel ("7", Fig. 5-34).

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector and door insulator.
2. Mark location and remove inner panel cam attaching screws ("1", Fig. 5-34); then, remove inner panel cam.
3. Disengage remote rod from spring clip on door lock, and remove handle and rod assembly.
4. Lower door glass to full-down position. Loosen division channel and remove vent glass as previously described.
5. Raise glass to full-up position and remove vent division channel as previously described in this section.
6. With division channel removed, lower glass half-way to disengage front roller; then, rotate front corner up 45 degrees to disengage rear roller. Once free of rollers, lift glass straight up inboard of upper frame.
7. To install, reverse removal procedure. Torque previously removed hardware attachments to 60 to 90 inch pounds.

REAR DOOR WINDOW REGULATOR

Removal and Installation

1. Remove door trim panel assembly, inner panel water deflector and door insulator.
2. Mark location and remove inner panel cam attaching screws ("1", Fig. 5-34) and inner panel cam.
3. Disengage the inside remote rod spring clip from the door lock assembly; then, remove the remote handle and rod.
4. Raise window glass to full-up position and secure in place with pieces of cloth body tape applied over door upper frame (Fig. 5-34).
5. Drive out rivet center pin with punch and drill out four (4) regulator attaching rivets with a 1/4" drill bit, disconnect motor harness connector at regulator motor.
6. Slide regulator forward to disengage front lift arm roller from run channel; then, pull rearward to disengage rear roller. Grasp regulator arms and bring regulator and motor assembly out through large access hole.
7. To install, reverse removal procedure. Attach to inner panel with attaching screw, Part No. 9419723 or equivalent. Place "J" nut (Part Nos. 1494257, 3916700 or equivalent) over each attaching hole in regulator back plate. Torque attaching screws to 72 inch pounds.

REAR DOOR WINDOW GLASS RUN CHANNEL

Removal and Installation

1. Lower window to full-down position.
2. Starting at front of frame using finger pressure squeeze channel and pull up until disengaged.
3. To install, reverse removal procedure.

SECTION 6

REAR QUARTER

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Rear Quarter Trim	6-1	Quarter Upper Trim-Reading	
Description	6-1	Lamp Assembly	6-2
Quarter Lower Trim	6-1	Pressure Relief Valve	6-2
		Exterior Moldings	6-3

REAR QUARTER TRIM

DESCRIPTION

The rear quarter area utilizes two separate trim finishing panels. The lower quarter trim is attached rear of the rear door opening below the beltline, while the upper quarter trim is attached above the beltline. The upper quarter trim incorporates a reading lamp assembly which is secured with four (4) self-threading nuts.

QUARTER LOWER TRIM

Removal

1. Remove appropriate rear door sill plate.
2. Remove rear seat cushion and back assembly as described in the Seat Section of this manual.
3. Remove quarter front garnish molding as described in the interior molding portion of the Roof Section of this manual.
4. Using tool J-24596, BT-7323 or equivalent, disengage quarter lower trim to inner panel nylon fasteners (Fig. 6-1).

5. To install, reverse removal procedure.

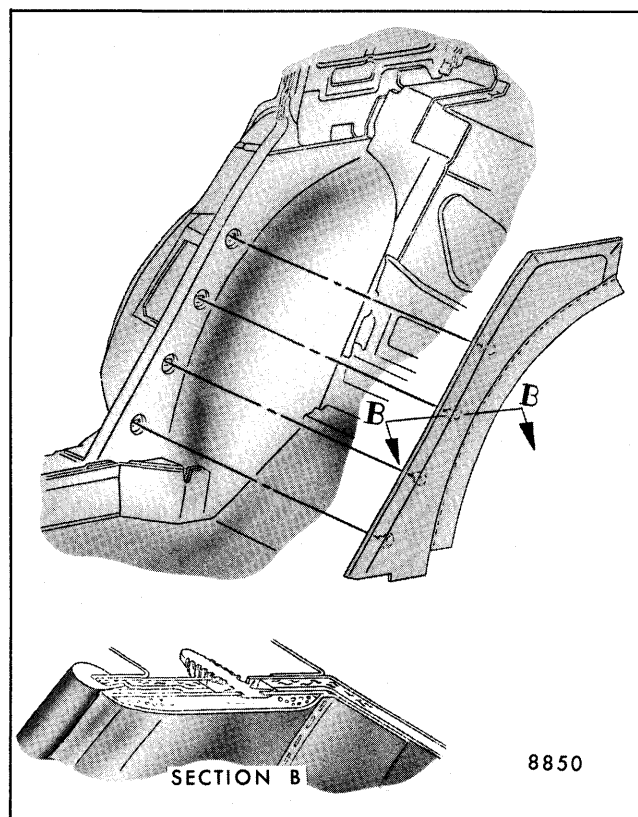


Fig. 6-1-Quarter Lower Trim Attachment

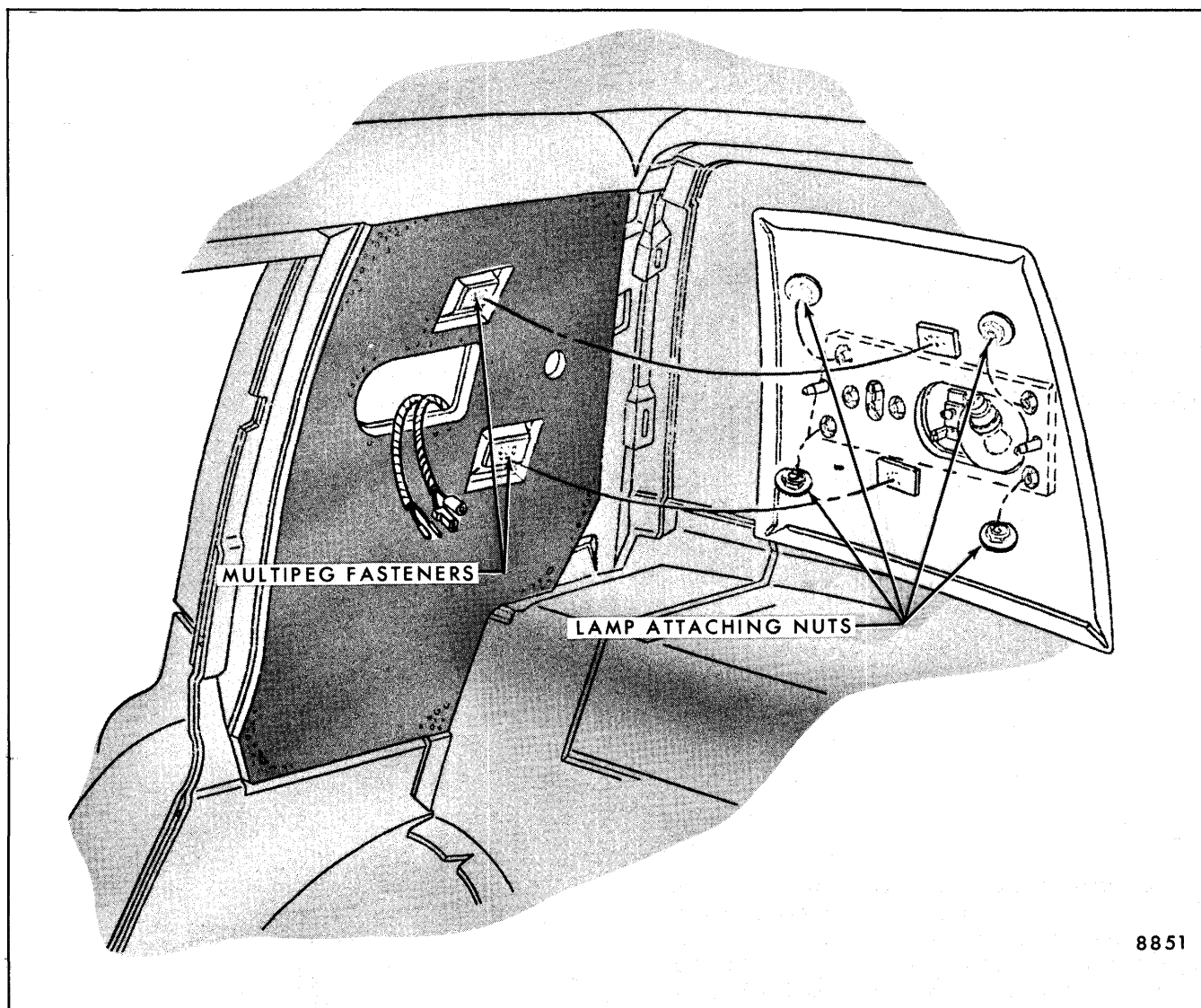


Fig. 6-2-Quarter Upper Trim and Lamp Assembly

QUARTER UPPER TRIM - READING LAMP ASSEMBLY

Removal

1. Remove rear seat cushion and back assembly as described in the Seat Section of this manual.
2. Remove appropriate quarter front, back window upper and back window side garnish moldings as described in the interior molding portion of the Roof Section in this manual.
3. Using equal force, with both hands pull the quarter upper trim assembly away to disengage the two (2) multipeg fasteners (Fig. 6-2).

4. Disconnect lamp feed wire connectors.

NOTE: The lamp assembly is detachable by removing the attaching nuts once the quarter upper trim is removed.

5. To install, reverse removal procedure.

PRESSURE RELIEF VALVE

The pressure relief valves are attached to the rear door lock pillars (in door opening below belt), with screws. Figure 6-3 shows pressure relief valve installation.

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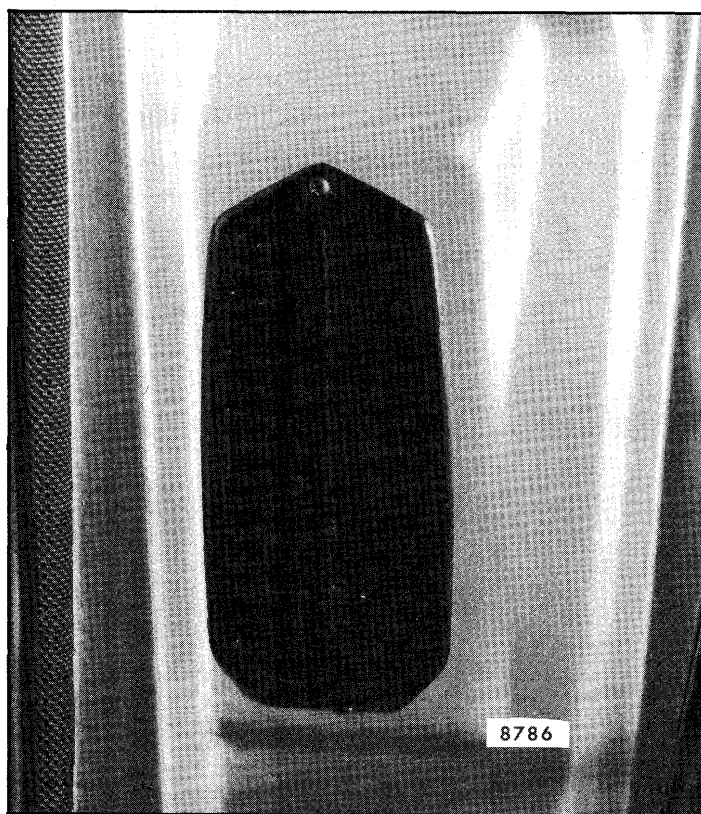


Fig. 6-3-Pressure Relief Valve

EXTERIOR MOLDINGS

The exterior moldings are secured to the body by any one or a combination of the following attachments. Refer to Figure 6-5 for illustrations of various attachments.

- A. Attaching screw
- B. Integral stud with attaching nut
- C. Weld stud or screw retained plastic clip

molding must be partially disengaged or removed first.

SEALING OPERATION

Although detailed sealing operations for each individual molding are not described, the following information is given to permit a satisfactory sealing operation.

GENERAL PRECAUTIONS

When removing or installing any body exterior molding, certain precautions should be exercised.

1. Adjacent finishes should be protected with masking tape to prevent damage to finish.
2. Proper tools and care should be employed to guard against molding damage.
3. When a molding is overlapped, the overlapping

MOLDING	ATTACHMENT	OVERLAPPING MOLDING
REAR WHEELHOUSE	A	NONE
REAR QUARTER LOWER	A & C	NONE
FRONT OF REAR WHEELHOUSE	A & B	REAR WHEELHOUSE

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Fig. 6-4-Rear Quarter (Lower) Molding Installation

Medium bodied sealer or body caulking compound are the sealers most frequently used to provide either a watertight seal or for anti-rattle measures.

Holes in body panels for screws, bolts or clips that would permit water to enter the interior of the body must be sealed with body caulking compound or presealed screws, nuts or clips.

MOLDING CLIP REPLACEMENT

If a weld stud on an outer panel becomes damaged or broken off, use the following procedure:

1. Drill a small hole in the panel adjacent to original weld stud installation.
2. Insert a self-sealing screw through original clip and into outer panel, or replace damaged weld stud with self-sealing screw type weld stud.

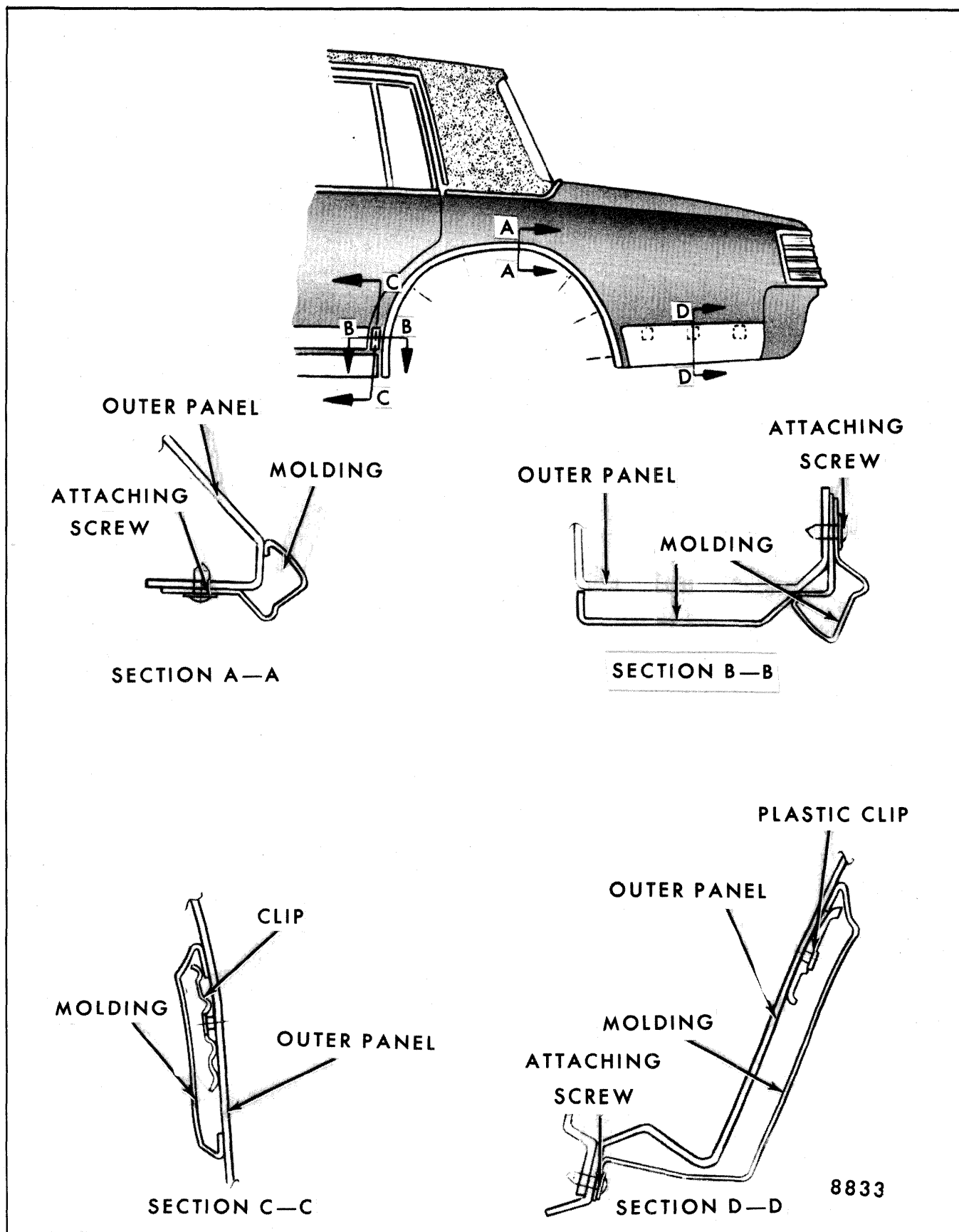


Fig. 6-5-Rear Quarter Moldings and Attachments

SECTION 7

REAR END

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REAR COMPARTMENT

INTRODUCTION

The service operations necessary for the removal, installation, adjustment and sealing of the rear compartment lid assembly and individual compartment lid hardware components and exterior moldings are contained in this section.

REAR END MOLDINGS

The rear compartment lid moldings and name plates are secured by attaching screws and/or integral studs with attaching nuts as illustrated in Figures 7-1 and 7-2.

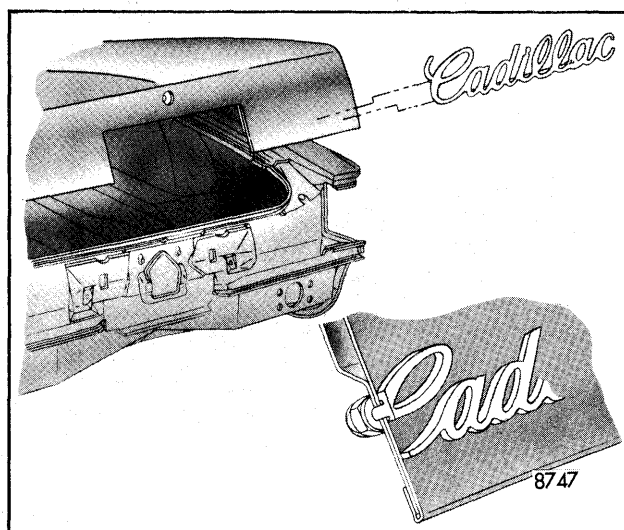


Fig. 7-1-Name Plate

REAR COMPARTMENT LOCK CYLINDER EMBLEM

Description

The rear compartment lock cylinder emblem is a swivel type nut retained emblem. The emblem is installed over the lock cylinder which necessitates emblem removal prior to lock cylinder replacement.

Removal and Installation (Figs. 7-3 and 7-4)

1. Open rear compartment lid and remove inner panel lock cylinder access hole cover by drilling out four rivets with a 5/32" diameter drill bit.
2. Working through access hole, remove attaching

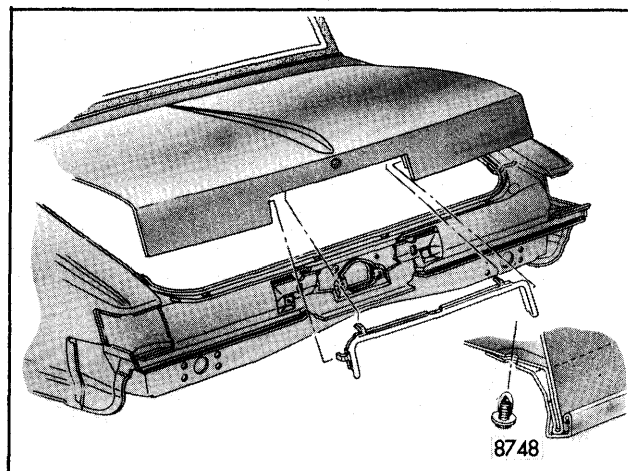


Fig. 7-2-License Plate Frame

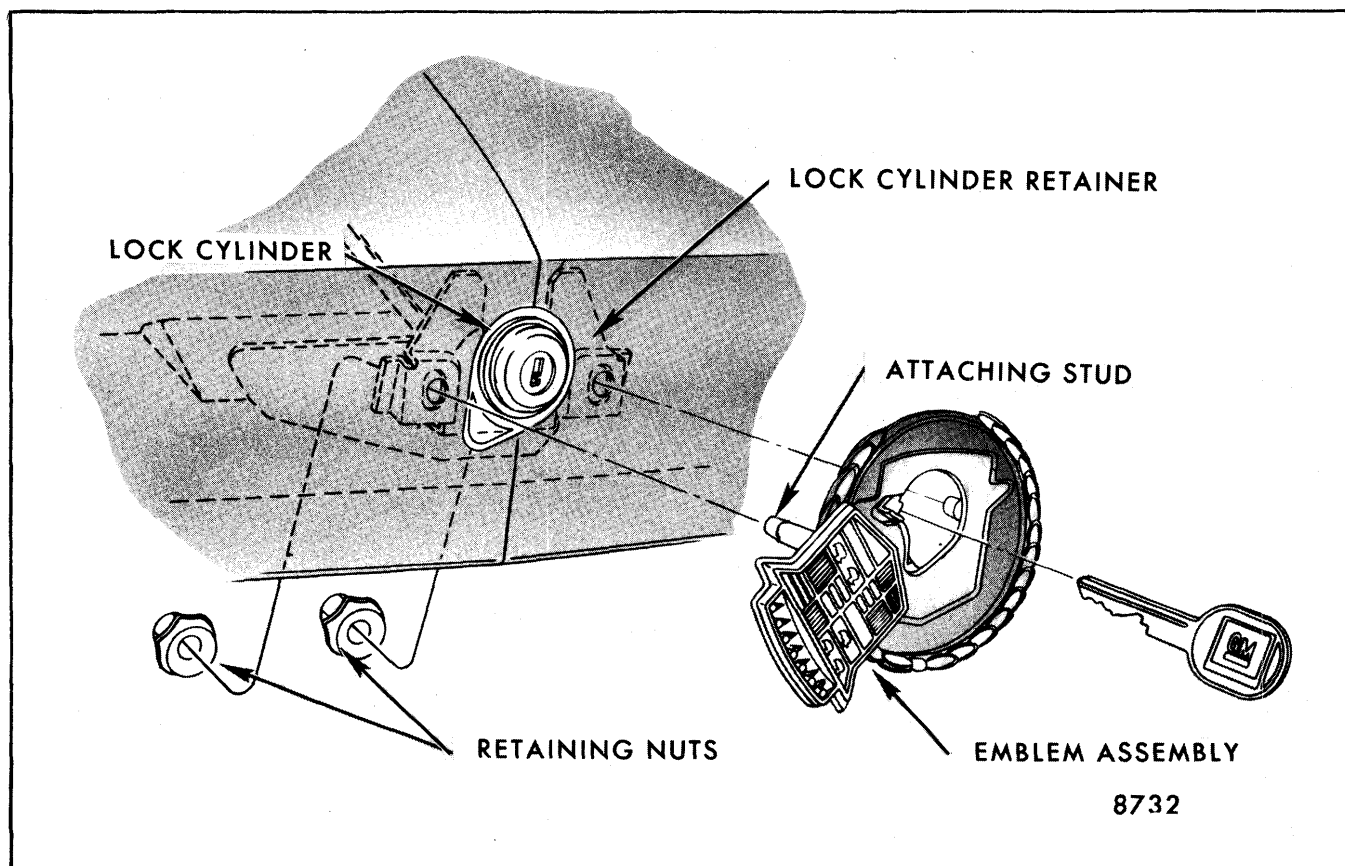


Fig. 7-3-Rear Compartment Lock Cylinder Emblem

- nuts and carefully remove emblem from the lid assembly.
3. To install, align emblem and gasket with attaching holes in lid assembly and while pressing firmly to lid install retaining nut.
 4. Reinstall access hole gasket and cover using pop rivets, Part No. 9428173 or equivalent.
 2. Pull retainer down from lock cylinder to release; then, remove cylinder from lid.
 3. To install, make certain that lock cylinder shaft engages with lock and that gasket mates properly with outer panel to form a watertight seal.

REAR COMPARTMENT LID LOCK CYLINDER

Description

The rear compartment lid lock cylinder is located in the lid assembly and is retained by a lock cylinder retainer that utilizes the emblem studs to hold it in position.

Removal and Installation (Fig. 7-5)

1. Open rear compartment lid and remove rear compartment lid lock cylinder emblem as previously described.

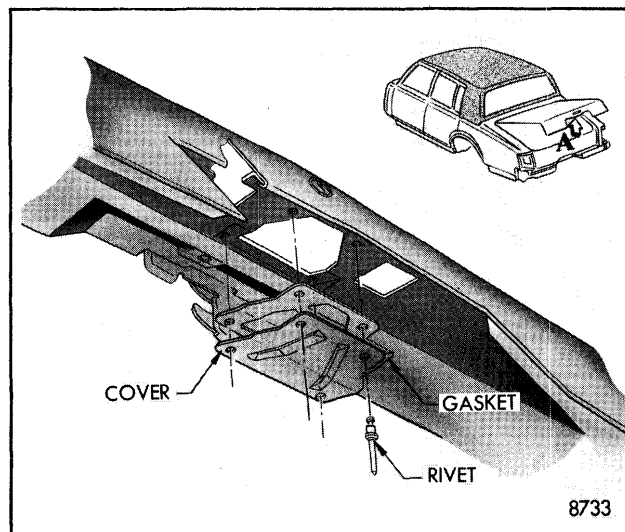


Fig. 7-4-Lock Cylinder Access Hole Cover

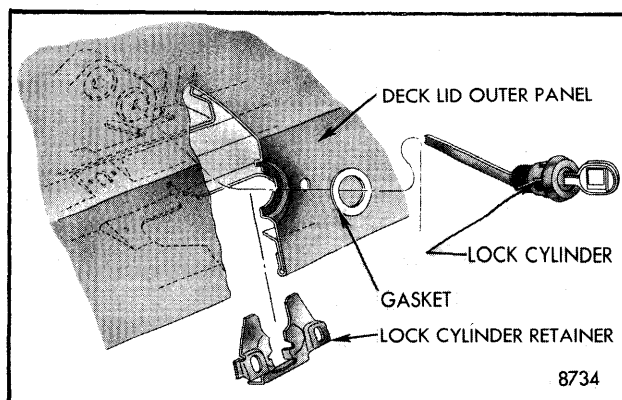


Fig. 7-5-Lock Cylinder Removal

Check for proper operation of lock cylinder with key; then, install retainer and lock cylinder emblem.

REAR COMPARTMENT LID LOCK AND SOLENOID

Description

The rear compartment lid incorporates an "open face" lock. The term "open face" refers to the construction of the lock frame which does not completely encase the lock mechanism. The electric lid release solenoid assembly is mounted onto the lock assembly by two of the lock attaching bolts. The electric lid release unit is designed to unlock the rear compartment lid from inside the car. For specific operating instructions, refer to the Owner's Manual.

Adjustments

The rear compartment lid lock is adjustable laterally and the striker vertically to provide for proper lid lock operation and lock to striker engagement.

To determine if lock and/or striker adjustment is required, proceed as follows:

1. Make certain rear compartment lid is properly aligned.
2. With lid in open position, apply a small quantity of modeling clay on lock frame at both sides of lock fork bolt; then, close lid with moderate force.
3. Open lid and check amount of engagement of striker with lock frame as indicated by indentations in clay. Striker bar indentations in clay should be uniform on both sides of lock frame. Where required, loosen striker or lock attaching

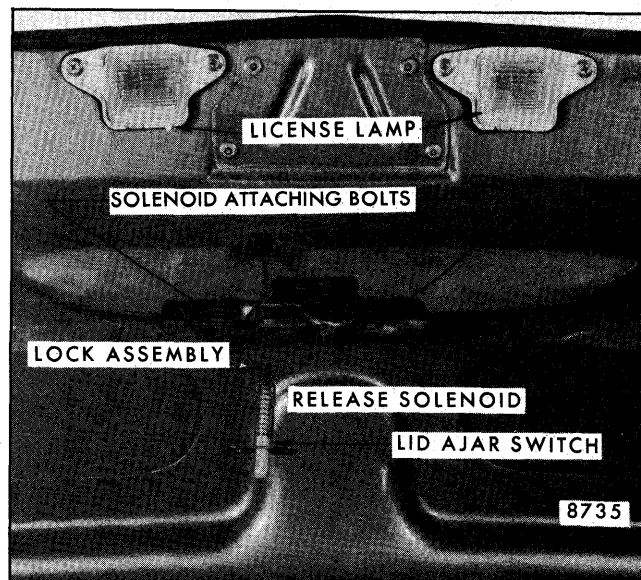


Fig. 7-6-Lock and Solenoid Assembly

screws and adjust to obtain proper engagement. Close lid and check for proper lid and key operation.

4. Secure lock attaching bolts 57-87 inch pounds torque.

Removal and Installation (Fig. 7-6)

1. Open rear compartment lid and remove lock cylinder and shaft as previously described.
2. Disconnect electric feed wire from lid release unit and remove two lock attaching bolts securing solenoid; then, remove third lock bolt to remove lock.
3. To install, reverse removal operations. Close lid and check lock engagement with striker. Make necessary adjustments as outlined under adjustments.

REAR COMPARTMENT LID LOCK STRIKER

Adjustments

The rear compartment lid lock striker is adjustable vertically and the lock laterally to provide proper lid lock operation and lock to striker engagement.

Removal and Installation (Fig. 7-7)

1. Open rear compartment lid. Mark vertical posi-

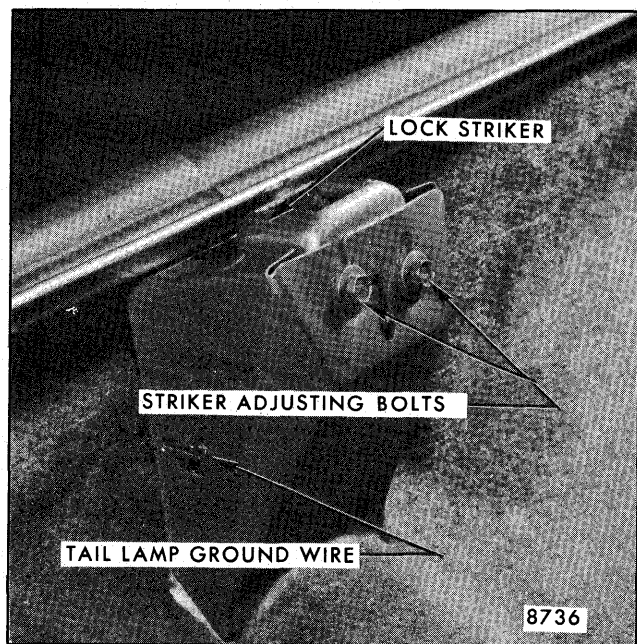


Fig. 7-7-Rear Compartment Lid Lock Striker

tion of striker by scribing a line at the top of striker support.

2. Remove striker attaching screws and remove striker.
3. To install, reverse removal procedure. Close lid and check lock to striker engagement. Make any necessary adjustments.

REAR COMPARTMENT LID

Description

The rear compartment lid consists of an inner and outer panel that is hemmed around the perimeter and bonded together with structural adhesive. The compartment lid hinge is welded to the body and bolted to the lid. The lid is hinged at the forward edge and balanced by use of torque rods to provide ease of operation and lid hold-open feature.

Adjustments (Fig. 7-8)

1. Fore, aft and lateral adjustment of the lid assembly is controlled by the hinge strap to lid attaching bolts. To adjust lid, remove hinge strap cover, loosen hinge strap to lid attaching bolts and shift lid to desired position; then, tighten bolts and replace hinge strap cover.
2. Up and down adjustment of the lid assembly is accomplished by placing shims between the

hinge and the lid assembly and/or by raising or lowering the rear compartment lid lock striker (for adjustment of striker, refer to Lid Lock Striker Adjustment).

To raise the right and/or left sides of the lid assembly, mark location of hinge on lid and install suitable shim between hinge strap and lid at forward bolt location. To lower lid, install shims at rear bolt location.

Removal and Installation (Fig. 7-8)

1. Open lid and place protective covering along edges of rear compartment opening to prevent damage to painted surfaces.
2. Disconnect wire harness, remove hinge strap covers and mark location of hinge straps on lid inner panel.
3. With aid of helper, remove attaching bolts securing hinges to lid and remove lid.
4. To install, reverse removal procedures.

REAR COMPARTMENT TORQUE RODS

Description

Torque rods are used to control the amount of effort



Fig. 7-8-Rear Compartment Lid Hinge Strap Cover

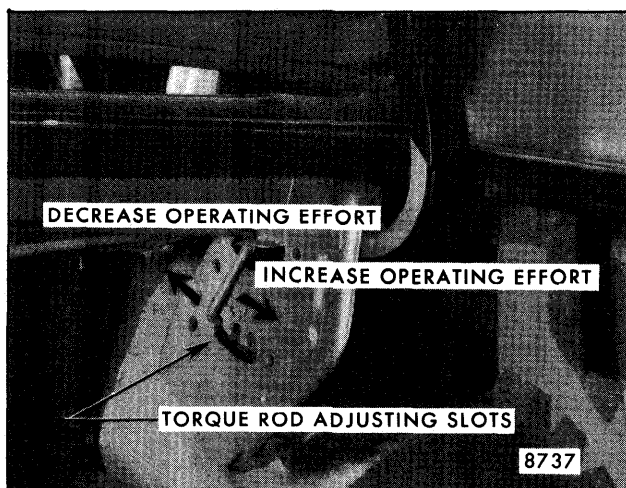


Fig. 7-9-Right Side Torque Rod With Trim Removed

needed to operate the rear compartment lid and can be adjusted to increase or decrease operating effort.

Adjustments (Figs. 7-9 and 7-10)

1. To decrease the amount of operating effort required to close the rear compartment lid, reposition the end of the rod to a forward torque rod adjusting notch with tool J-25476 or equivalent.
2. To increase the amount of operating effort required to close the rear compartment lid, reposition the end of the rod to a rearward torque rod adjusting notch with tool J-25476 or equivalent.

Removal and Installation

1. For removal and/or adjustment of rear compartment lid torque rods, use tool J-25476 or equivalent.
2. Prop lid in full open position and fold trim back from hinge box. When working on the right side, remove spare tire (Fig. 7-9).
3. To remove torque rods, install torque rod removing and adjusting tool onto torque rod and adjust rod to forward most adjusting slot (Fig. 7-10). Using a flat-bladed tool, disengage end of rod from adjusting slot and from retainer and allow rod to unwind while holding onto adjusting tool (Fig. 7-10). To disengage tool J-25476 or equivalent from the torque rod, it will be necessary to install a pair of locking-type pliers on the rod and lift upwards on the pliers (Fig. 7-11).

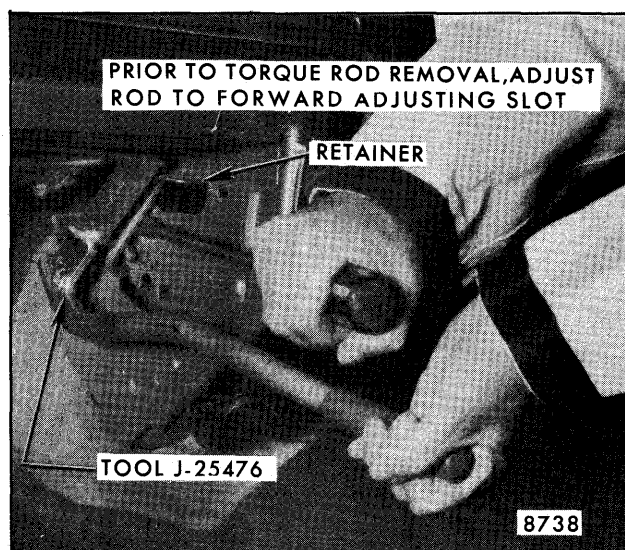


Fig. 7-10-Torque Rod Tool Engagement

4. Disengage opposite end of torque rod from hinge arm and remove from body.
5. To install, engage adjusting end of torque rod into forward adjusting slot and fixed end into hinge arm at opposite side. Clamp locking-type pliers on rod, Figure 7-11.
6. Wind torque rod with locking-type pliers until tool J-25476 or equivalent can be installed onto torque rod.
7. Maintain tension on torque rod with tool J-25476 or equivalent and remove locking-type pliers.

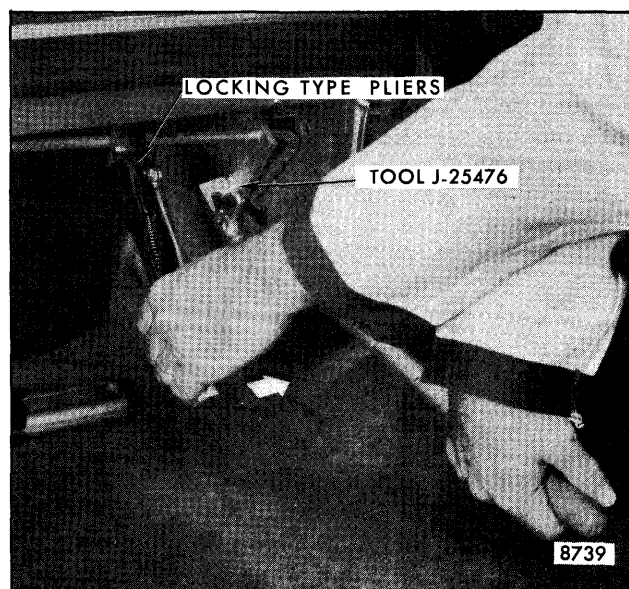


Fig. 7-11-Torque Rod Tool Removal

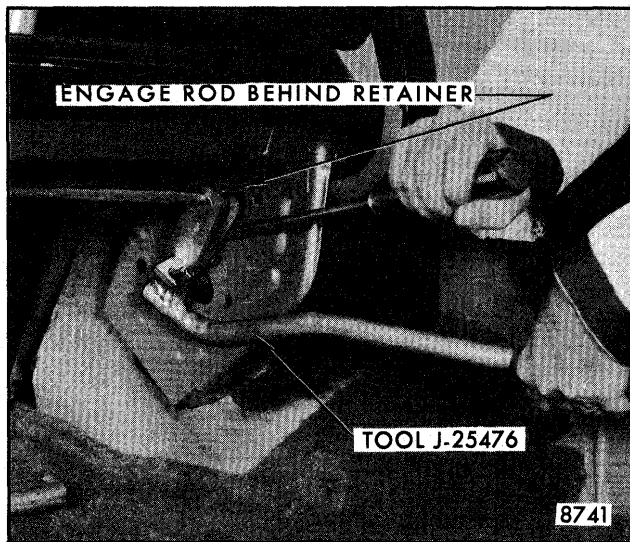


Fig. 7-12-Torque Rod Engagement

8. Using tool J-25476 or equivalent, rotate rod upward and engage rod behind retainer with the aid of a long flat-bladed screwdriver, as shown in Figure 7-12.
9. Check operation of deck lid and adjust as required; then, replace rear compartment trim, spare tire and cover.

REAR COMPARTMENT WEATHERSTRIP

Description

A supersoft foam clinch type weatherstrip is used to seal the opening. The weatherstrip incorporates an integral metal reinforced section and a mastic material (sealer) in the clinch cavity which grips and seals the weatherstrip to the gutter flange. No additional cement or sealer is required except at the butt joint, Figure 7-13.

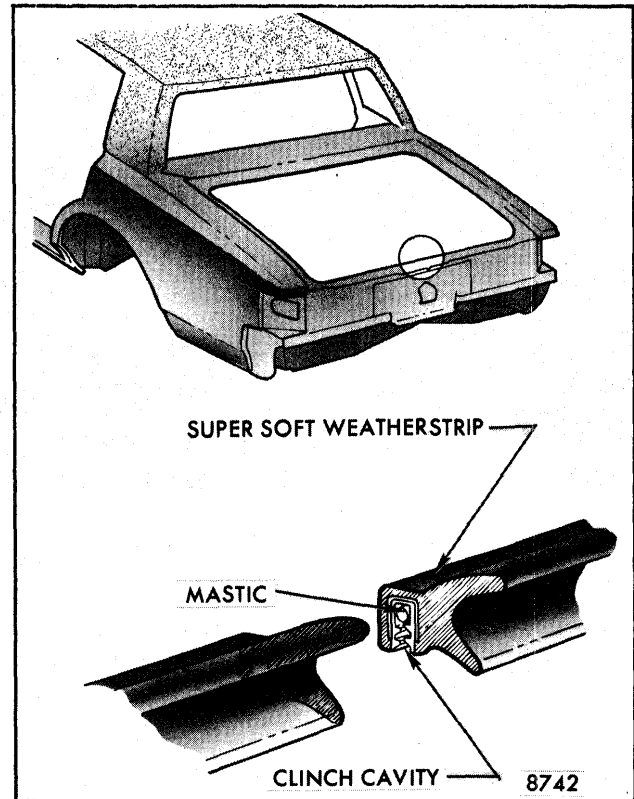


Fig. 7-13-Rear Compartment Weatherstrip

Removal and Installation

1. Separate butt joint at base of opening.
2. Peel weatherstrip from gutter flange around complete opening.
3. To install, begin inserting center of weatherstrip (marked with paint) onto gutter flange at forward center of opening between hinges. Be sure weatherstrip is completely seated around the entire opening.
4. Cement butt ends together.

EXTERIOR LAMPS

TAIL LAMPS

The methods employed to remove and install the tail, side marker and backup lamp assemblies are illustrated in Figures 7-14 and 7-15. They provide a quick reference for performing the basic service operations.

The tail lamp assemblies are the "wrap around" type which incorporate the rear quarter side marker lamps. The complete assembly is retained with attaching nuts accessible from inside the rear compartment.

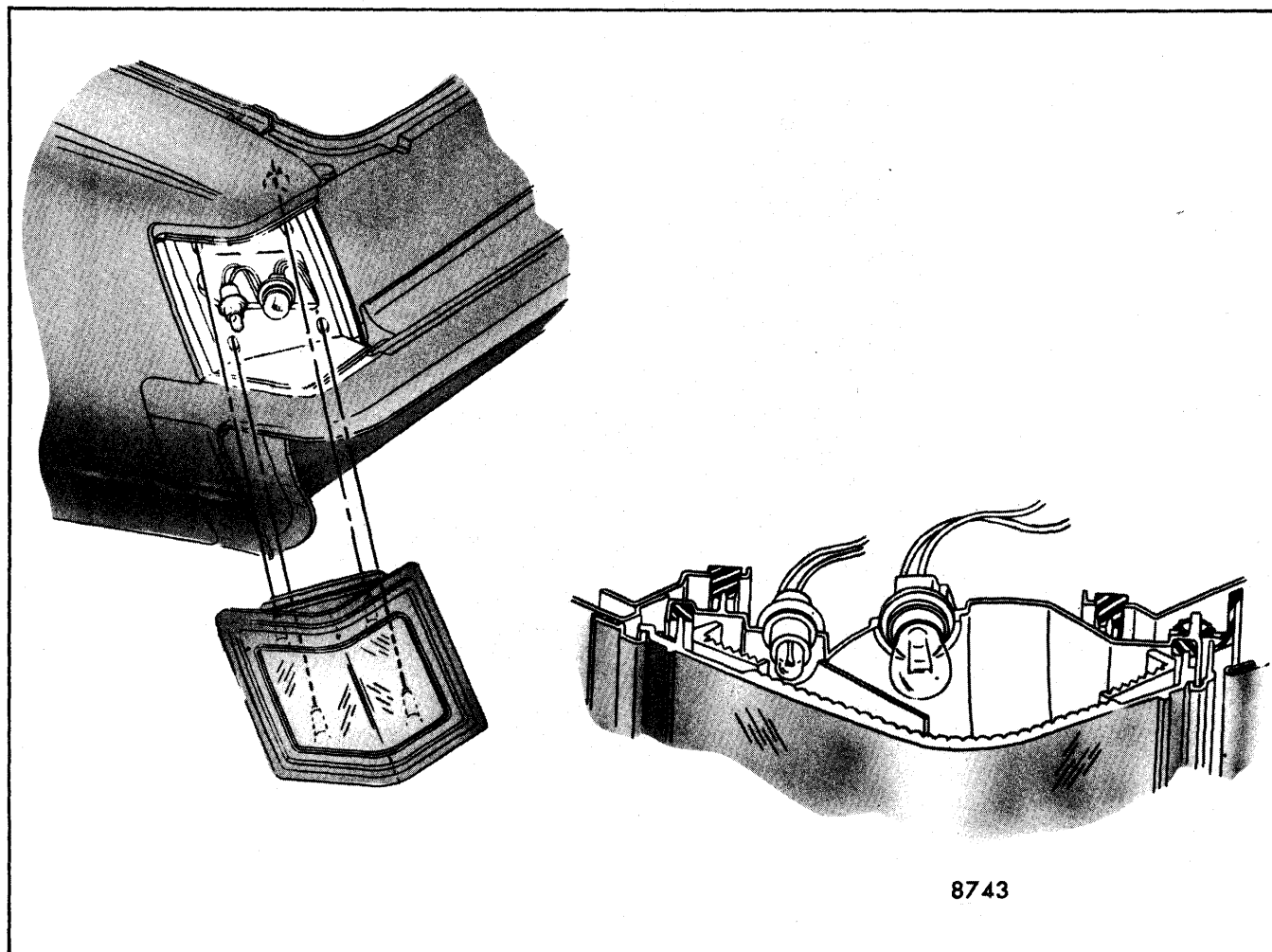


Fig. 7-14-Tail and Side Marker Lamp

BACKUP LAMPS

Backup lenses are retained by an upper and lower attaching screw. The lower screw is hidden and can be removed as shown in Figure 7-15. Bulb replacement requires lens removal to gain access to the bulb assembly.

EXTERIOR LAMP SEALING

Care should be exercised to prevent waterleaks at the tail lamp area when sealing surfaces are disturbed. Damaged gaskets should be replaced.

If new gaskets are not installed, the use of sealer (body caulking compound or equivalent) is recommended at critical areas and where the old gaskets have taken a set.

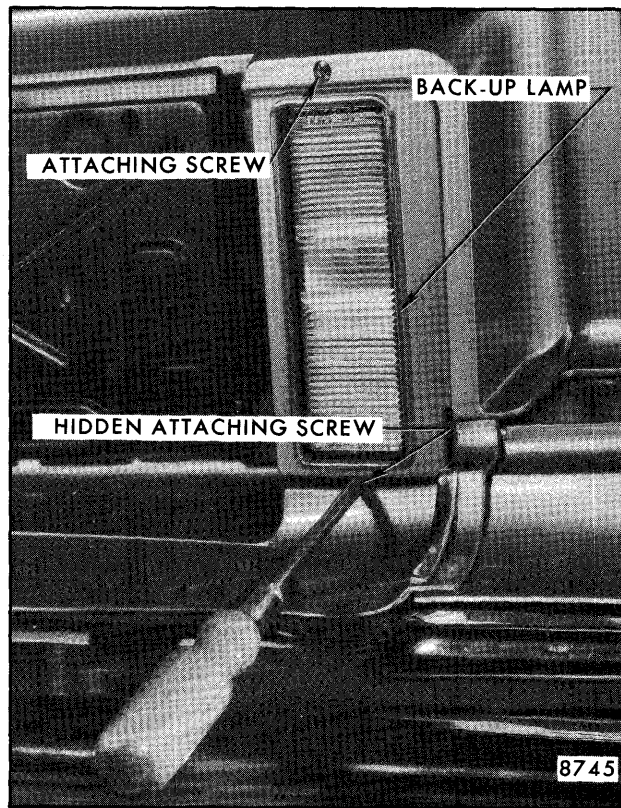


Fig. 7-15-Backup Lamp

FIBER OPTIC MONITOR SYSTEM

DESCRIPTION

The optional fiber optic system monitors tail, stop and directional lamp illumination from the passenger compartment.

Basically, fiber optic conductor which is approximately 1/16 inch in diameter, consists of a bundle of transparent acrylic strands with an opaque black vi-

nyl coating. Light is reflected along each strand within the bundle and is unaffected by the curves encountered during conductor routing. The ends of each bundle are cleanly cut and polished for maximum light transfer.

The conductor is routed along the rear quarter from the tail lamps to the monitor. The monitor is installed on the roof near the back window opening (Fig. 7-16).

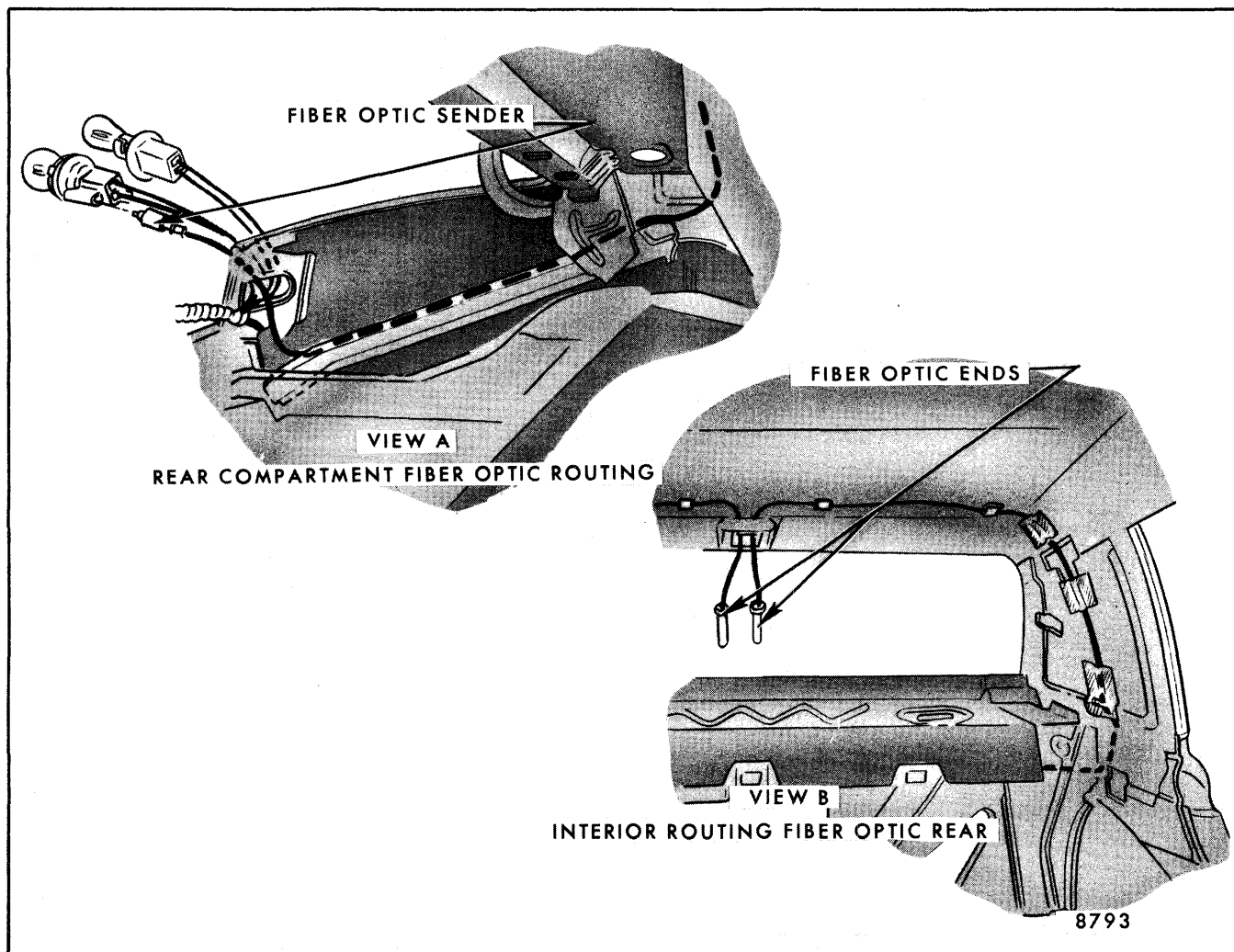


Fig. 7-16-Fiber Optic Routing - Cadillac "K" Style - Right Side Shown, Left Side Similar

GAS TANK FILLER DOOR

Removal and Installation

The gas tank filler door is retained by two attaching screws. For removal refer to Figure 7-17.

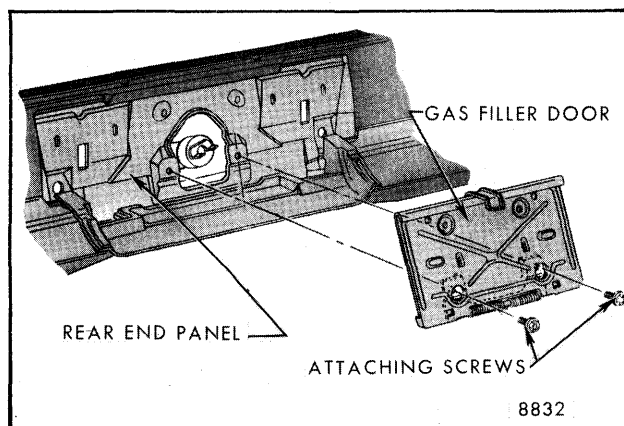


Fig. 7-17-Gas Tank Filler Door Attachment

SECTION 8

ROOF

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INTERIOR GARNISH MOLDINGS AND FINISHING LACE

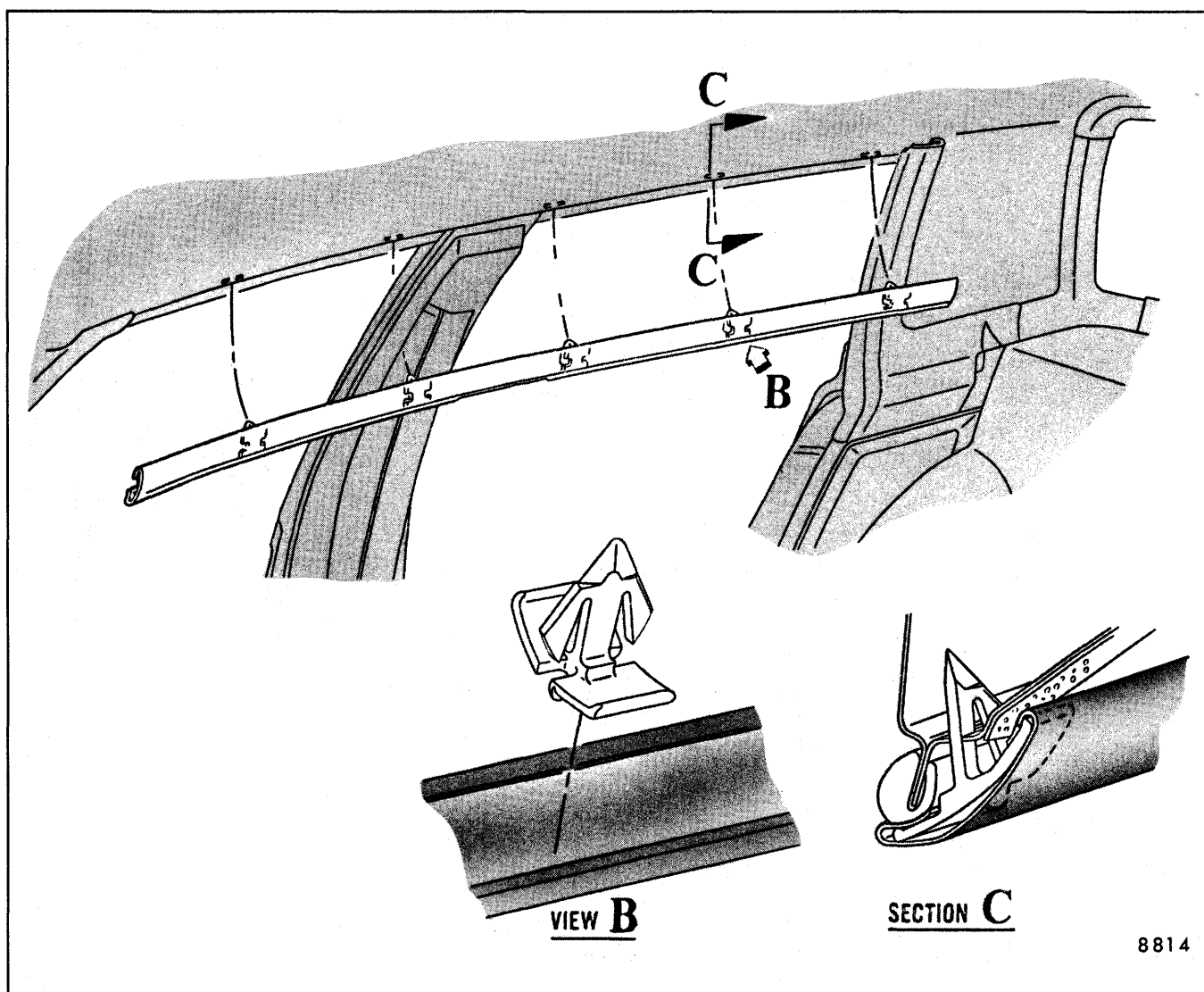


Fig. 8-1-Side Roof Rail Garnish Molding

DESCRIPTION

The interior garnish moldings are constructed of metal and/or aluminum and painted to match the interior trim of the vehicle. The moldings are retained with nylon clips and attaching screws. In addition, a finishing lace is installed to the hem flange around door openings.

NOTE: When removing a given molding, it may be necessary to remove adjacent moldings due to an overlap or telescoping condition.

REMOVAL PROCEDURES

Side Roof Rail Garnish

1. Disengage five (5) molding clips from slots in side roof rail using a flat-bladed tool (J-2772 or equivalent).
2. Insert tool between molding and headlining at

clip location and gently apply pressure until clip becomes disengaged (Fig. 8-1).

Windshield Side Garnish

NOTE: It is necessary to remove instrument panel cover prior to removing windshield side garnish moldings. Refer to car division manual for instrument panel cover removal procedure.

1. Remove lower two (2) molding attaching screws.
2. Insert flat-bladed tool (J-2772 or equivalent) between molding and finishing lace at top clip location and gently force clip from attaching slot in windshield pillar (Fig. 8-2).

Windshield Upper Garnish

NOTE: It is necessary to remove instrument panel cover prior to removing windshield side garnish

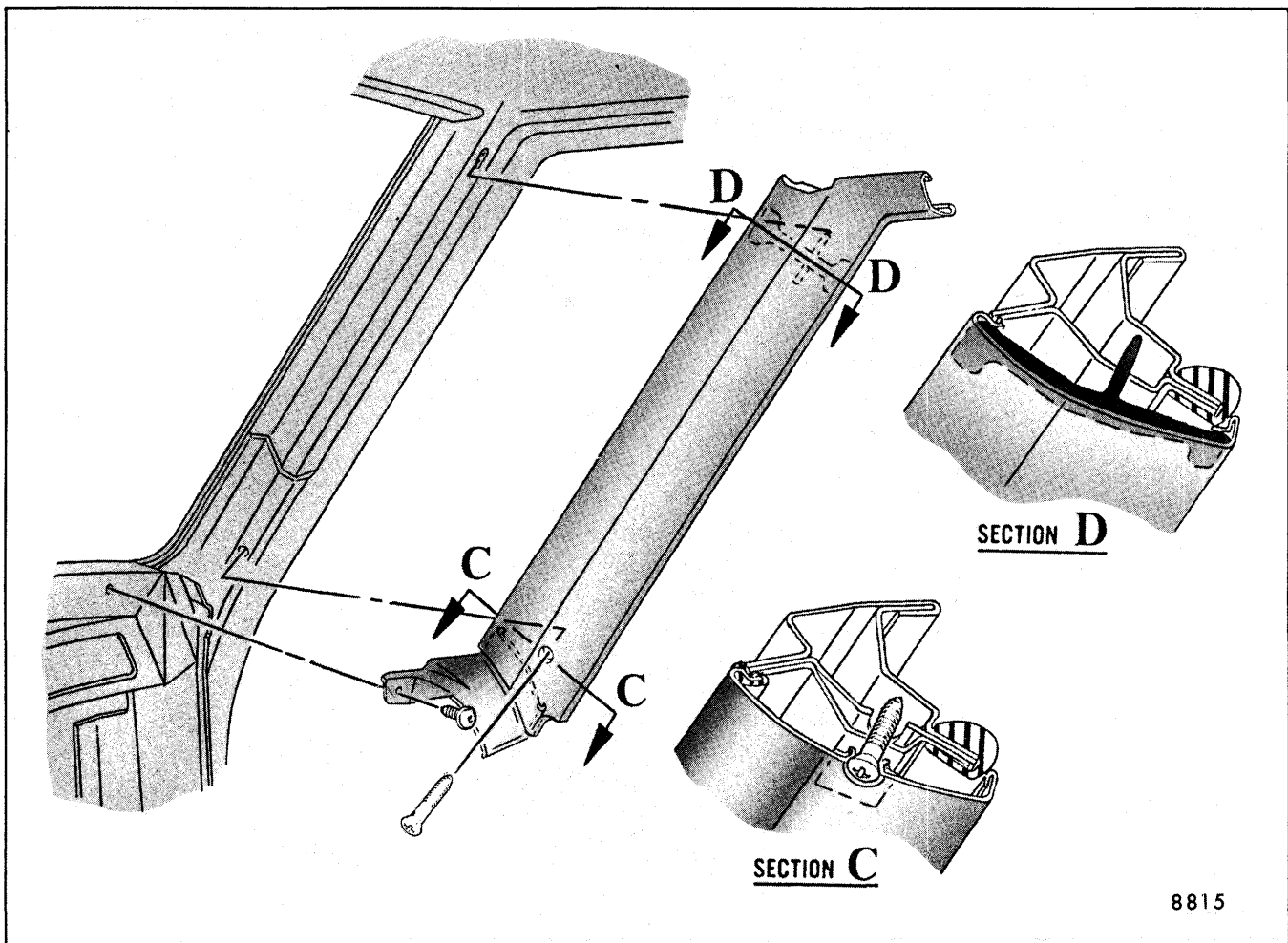


Fig. 8-2-Windshield Side Garnish Molding

moldings. Refer to car division manual for instrument panel cover removal procedure.

1. Insert a flat-bladed tool (J-2772 or equivalent) between the upper molding and headlining at the five (5) clip locations.
2. Apply downward effort until clip disengages attaching slots in roof inner panel.

Quarter Front Garnish

1. Remove rear seat cushion and seat back as described in the seat section of this manual.
2. Remove lower quarter trim as described in the rear quarter section of this manual.
3. Remove two (2) lower molding attaching screws.

4. Insert flat-bladed tool (J-2772 or equivalent) between front edge of molding and finishing lace at two (2) clip locations and gently force attaching clips from retaining slots (Fig. 8-3).

Back Window Side, Upper and Lower Garnish

NOTE: The upper and lower garnish moldings overlap the back window side garnish moldings, requiring prior removal.

1. Remove fiber optic assembly attaching screws.
2. Insert flat-bladed tool (J-2772 or equivalent) between molding and headlining at two clip locations on both sections of the upper molding.
3. Apply downward effort until attaching clip(s) disengage from retaining slots.

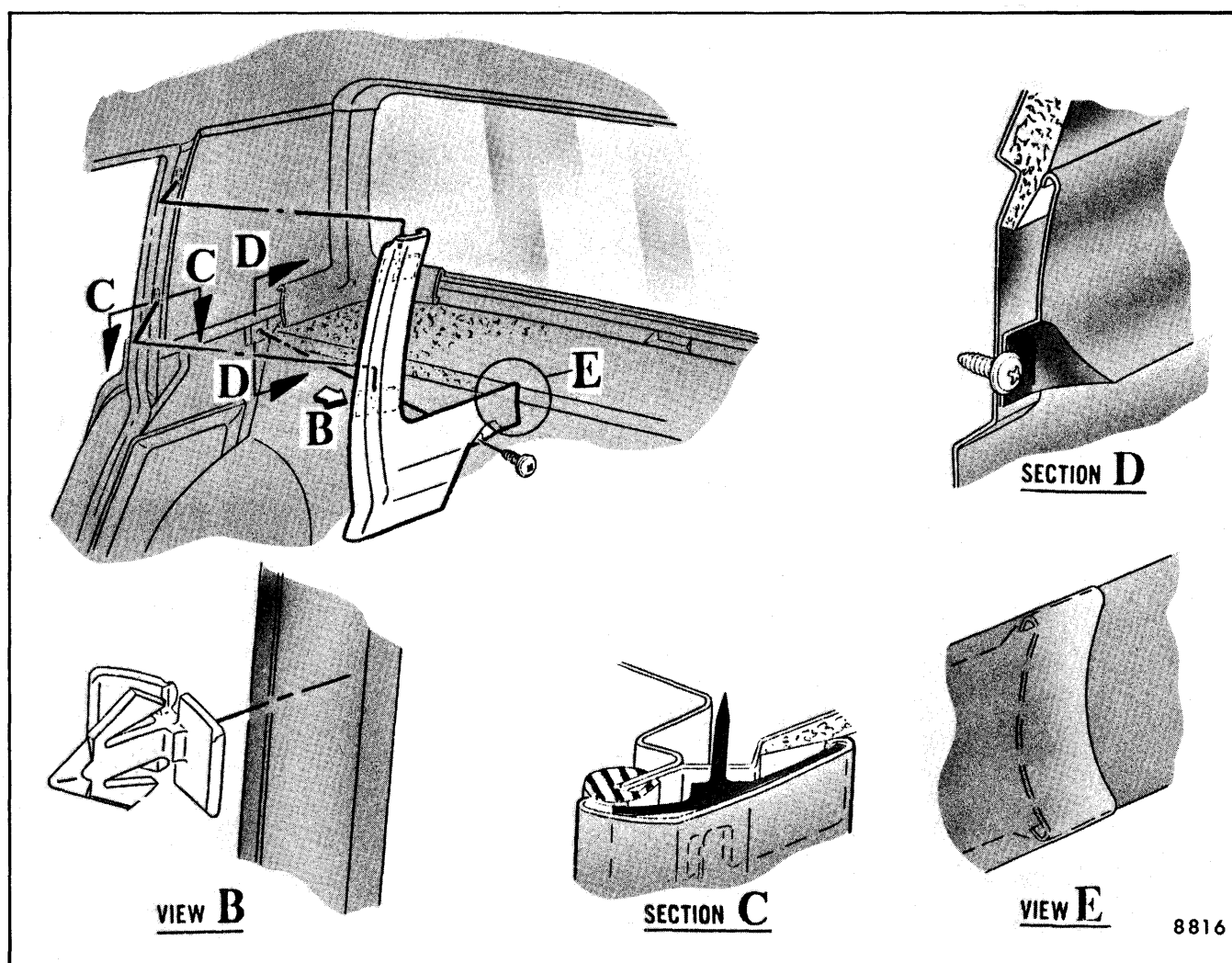


Fig. 8-3-Quarter Front Garnish Molding

4. The back window lower garnish is secured with five (5) nylon clips and is removable in a like manner.
5. The back window side garnish is retained by two (2) clips and is removed by inserting flat-bladed tool (J-2772 or equivalent) at clip location(s) between front edge of molding and quarter upper trim.

2. Apply pressure to molding at clip location until clip engages and locks in position.

CAUTION: *Care must be applied when handling moldings to avoid scratches and dings to painted surfaces.*

INSTALLATION PROCEDURE

All Garnish Moldings

1. Position moldings to correct location and align clips to correspond with retaining slots.

FINISHING LACE

The finishing lace is installed to hem flanges around top and sides of door openings. At some areas it may be necessary to remove garnish molding(s) to permit removal. To remove, pull lace straight away from installed position. To install, press opening of lace evenly onto corresponding hem flange.

SUNSHADE AND VANITY MIRROR LAMP ASSEMBLY

DESCRIPTION

The sunshade assembly is attached to the roof inner panel at the outboard side by three (3) attaching screws.

The sunshade vanity mirror lamp assembly lights when the sunshade is lowered and the mirror cover (door) is raised. Lamps can be set at either high or low beam, and are turned off when the mirror cover (door) is closed.

The vanity mirror body harness extends above the windshield opening to the top of the right windshield pillar. At this point a connector attaches to the lamp assembly harness (Fig. 8-4).

Removal and Installation

1. To remove lamp lens pry out at bottom with flat-bladed tool.
2. Remove four (4) attaching screws that secure mirror and escutcheon assembly to sunshade.
3. To remove switch and fuse assembly disconnect wiring at switch. Then, heat plastic that covers top ends of fiber switch base with a soldering iron (Fig. 8-4).
4. The mirror cover (door) is removed by disengaging the hinge pins from plastic tabs at each end of the mirror and escutcheon assembly, then pulling hinge pins outboard (Fig. 8-4).
5. To install, reverse removal procedure.

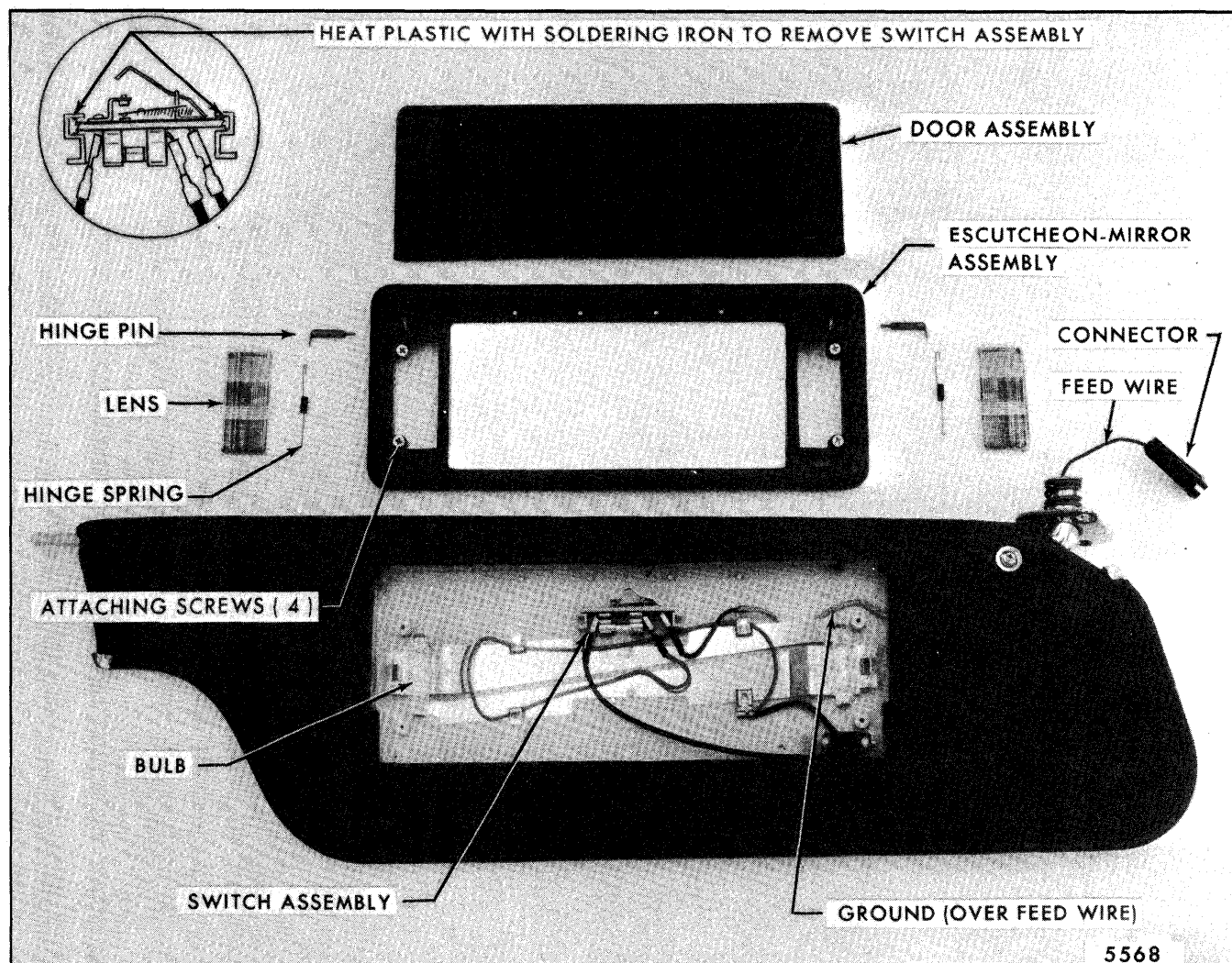


Fig. 8-4-Vanity Mirror and Lamp Assembly

ASSIST STRAPS (Roof Mounted)

DESCRIPTION

Occupant assist straps are provided above both rear doors and above the right front door. The straps are attached to the side roof rail by four (4) attaching screws secured to clinch nuts in the side roof rail.

Removal

1. Insert a narrow, thin-bladed tool between the attaching screw cover escutcheon and remove both covers.
2. Remove four (4) assist strap attaching screws and remove assist strap assembly (Fig. 8-5).
3. To install, reverse removal procedure.

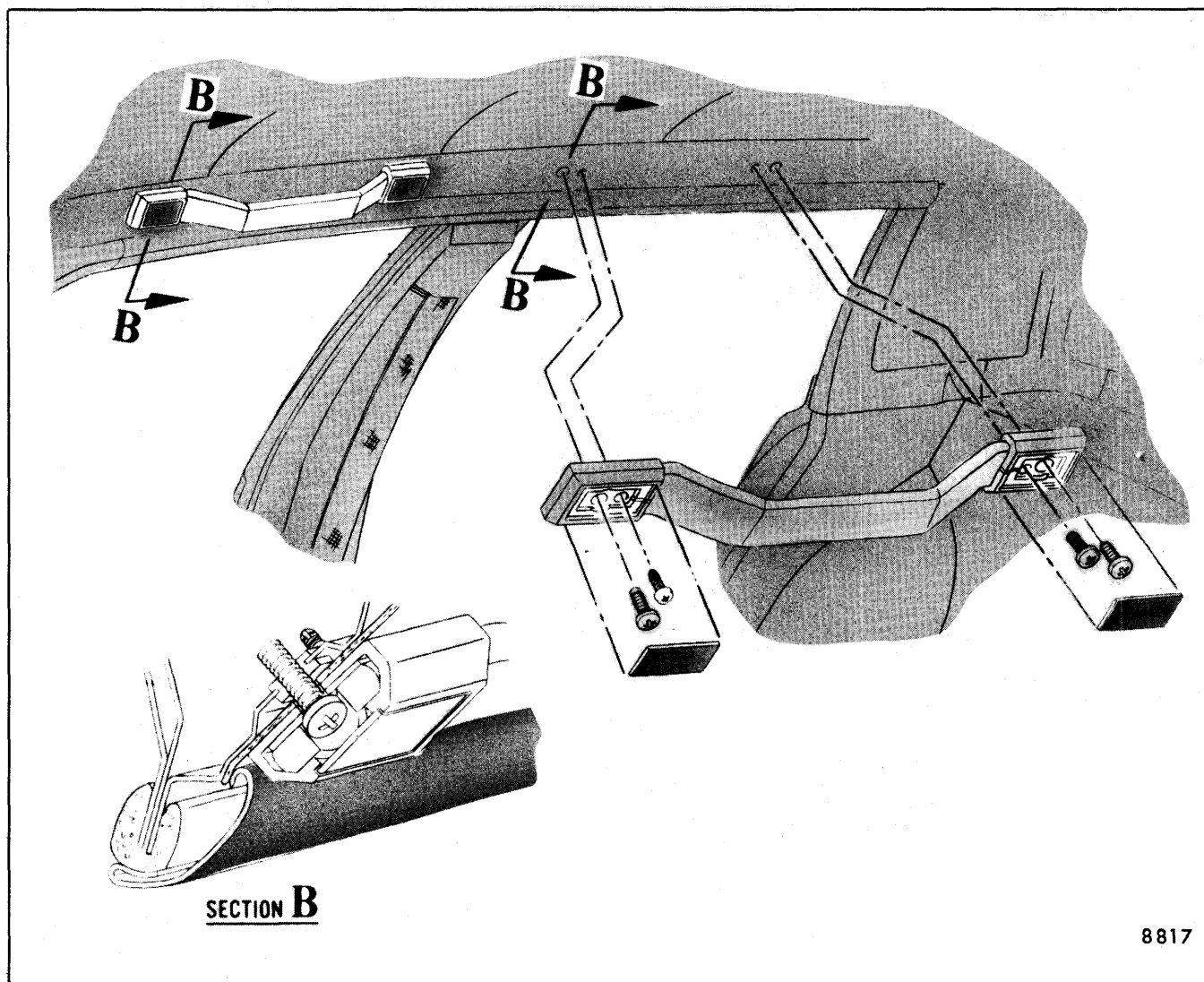


Fig. 8-5-Assist Strap

DOMES READING LAMPS

DESCRIPTION

The dome lamp operates in conjunction with the door jamb switch and/or the headlamp switch. The reading lamp feature operates by activating on-off switch. This feature is an integral part of the lamp assembly. The lamp harness extends up the left windshield pillar, inboard of the sunshade support and across the roof inner panel to the lamp assembly. Clips in the harness attach to retaining slots in the roof inner panel. Circuit diagrams are illustrated in the Electrical Section of this manual. Dome reading lamp removal is shown in Figure 8-6.

Removal and Installation

1. Insert a flat-bladed screwdriver or similar tool

between dome lamp lens and lamp base at rear edge. Press inward and down to disengage lens retaining tabs from base.

2. Remove bulb from terminal connectors.
3. Remove two (2) lamp housing attaching screws (Fig. 8-6).
4. Remove two (2) lamp base to roof inner panel attaching screws and disconnect feed wire connector.
5. To install lamp assembly, reverse removal procedure.

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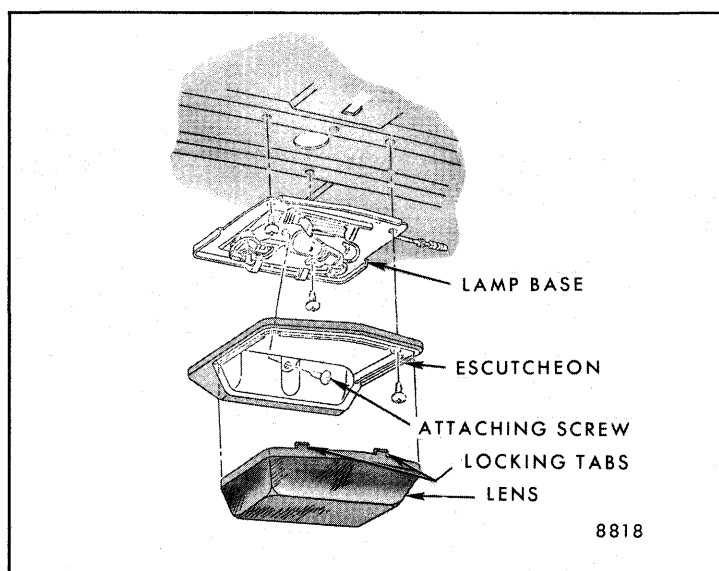


Fig. 8-6-Dome Lamp

HEADLINING ASSEMBLY

DESCRIPTION

The headlining assembly is attached to the roof inner panel by concealed plastic retaining strips. The retaining strips are sewn to the headlining assembly and have rectangular lugs that fit into "T"-slots in the roof inner panel (see Fig. 8-7).

The headlining is further retained along the side roof rails and roof extension areas by cement. Garnish moldings and finishing lace are also used to assist in retaining the headlining.

Removal of quarter upper trim is covered in the Rear Quarter Section of this manual.

Removal of moldings and hardware components is covered earlier in this section.

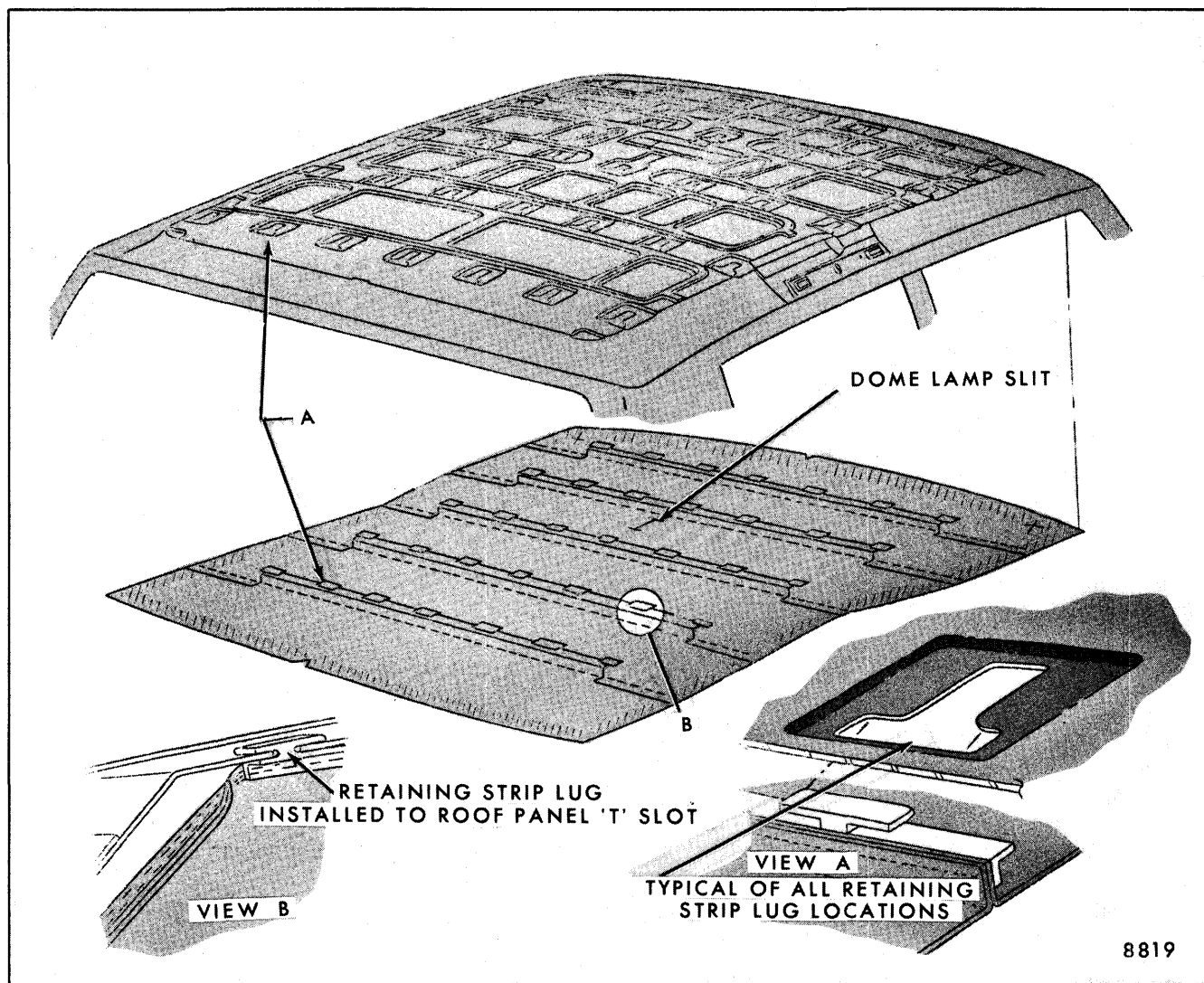
Removal

1. Place protective cover over seat cushions and backs.
2. Prior to removing headlining, remove following hardware and trim assemblies if installed over headlining.

- a. Windshield side and upper garnish moldings.
- b. Interior dome courtesy and reading lamp.
- c. Sunshade supports.
- d. Coat hooks.
- e. Side roof moldings and finishing lace above door openings.
- f. Back window upper garnish molding.
- g. Center pillar trim assembly.
- h. Rear quarter trim, where necessary.
- i. Quarter upper trim finishing panel.
- j. Roof-mounted assist straps.

3. Carefully detach cemented edge of headlining around entire perimeter of roof. If headlining is difficult to detach, apply heat with heat gun to cemented areas for easier removal and to prevent tearing.

NOTE: Keep headlining clean by gathering or folding assembly with retaining strips to outside



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Fig. 8-7-Headlining Installation

of material during removal.

- Starting at front of body carefully detach retaining strips by pulling toward rear of body to disengage rectangular lugs from "T"-slots on each strip and remove headlining from body.

Installation

- Check headlining retaining strips for cracked or broken rectangular lugs. If damaged, use metal service clip to replace.
- Lift headlining assembly into body. Starting at rear of body, engage outer lug of retaining strip to "T"-slot in roof inner panel and slide forward to secure. Working inboard, insert remaining

lugs of attaching strip.

- Working forward, keeping tension pulled toward front of body, install and secure remaining retaining strips.

NOTE: Position headlining from side to side as required to keep headlining centered during installation.

- Apply an approved non-staining trim cement to headlining surface at windshield, side roof rail and back window (see Fig. 8-8).

NOTE: If sequence in step 5 is not followed, wrinkles may occur at ends of retaining strips when headlining is secured at side roof rails.

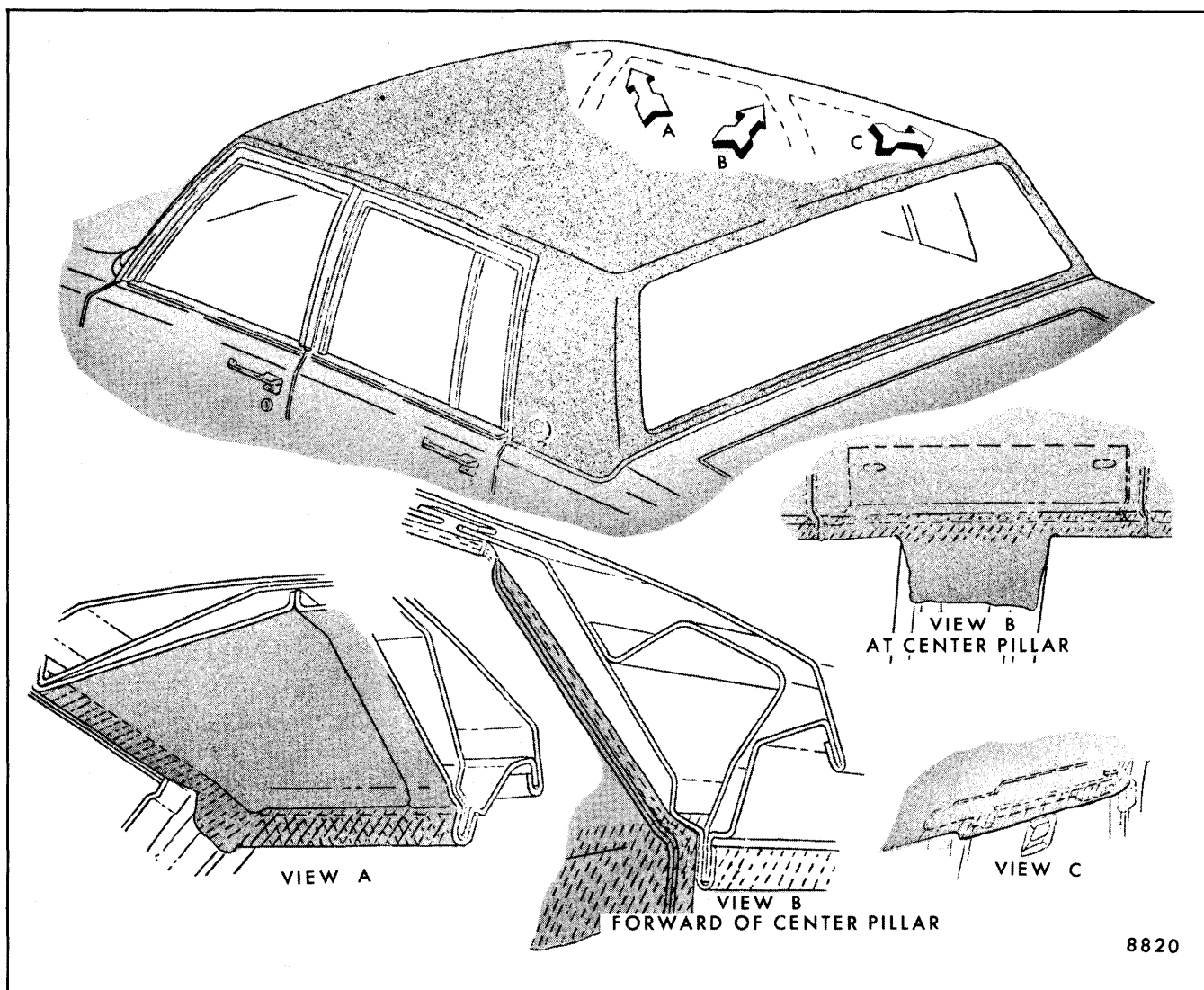


Fig. 8-8-Trim Cement Application to Headlining

5. Stretch and secure headlining at windshield first; then secure at back window opening, rear quarter areas and side roof rail.
6. Permanently attach material, removing all draws and wrinkles.
7. Depress headlining against roof inner panel to find locations of attaching screw holes for all previously removed inside hardware, moldings and trim assemblies.

EXTERIOR ROOF MOLDINGS

ROOF DRIP SCALP MOLDINGS (Refer to Fig. 8-9)

To remove roof drip scalp front, upper and rear moldings, remove ten (10) attaching screws. To reinstall moldings, apply a body sealing compound such as 3M Strip-Caulk No. 8578 or equivalent between drip molding and attaching surface and secure with previously removed screws.

QUARTER BELT REVEAL MOLDINGS (Refer to Fig. 8-10)

NOTE: Protect adjacent paint surface when reinstalling molding.

The quarter belt reveal molding is retained by plastic clips installed over weld studs. Reveal molding can be removed by inserting a flat bladed tool under the

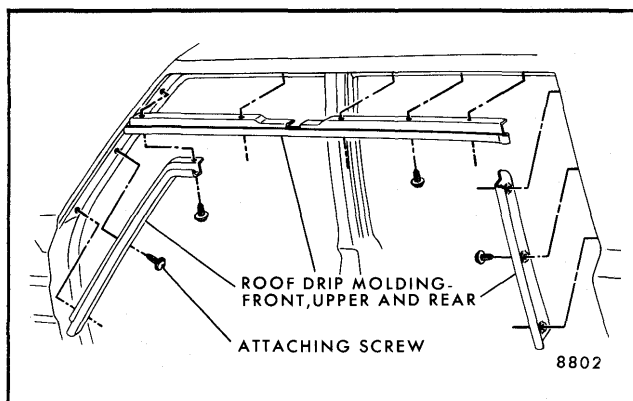


Fig. 8-9-Roof Drip Scalp Molding Removal

molding at clip location and disengaging the molding from the clip. When installing molding, align molding to body and snap in place by applying pressure at clip locations.

ROOF PANEL EMBLEMS

Removal and Installation

1. Remove upper quarter trim (refer to rear quarter trim section in this manual).

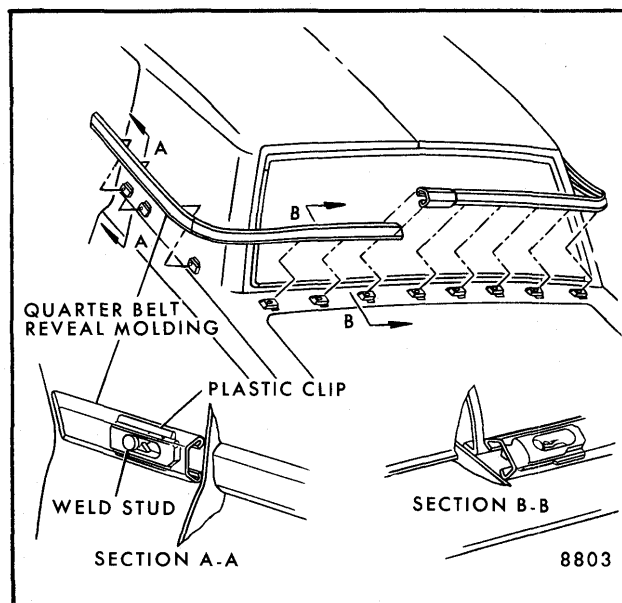


Fig. 8-10-Quarter Belt Reveal Molding Removal

2. Remove nuts from emblem studs and remove emblem.
3. To install, reverse removal procedure making certain holes in roof panel for emblem studs are sealed with body caulking compound to prevent entry of water.

FABRIC ROOF COVER

DESCRIPTION

The fabric roof cover is constructed of a vinyl coated material that has an integral pad. In addition, foam pads are used along the sides of roof panel. The foam pads are first cemented to the sides of roof panel, then the integral cover is cemented to the pads in addition to being cemented directly to center portion of the roof panel.

The cover is retained in the windshield opening by adhesive, clips installed over weld-on studs and drive nails, and in back window opening by adhesive and finishing moldings. The cover is retained along sides of roof panel by roof drip scalp moldings.

Removal

1. Remove the following parts prior to removing fabric roof cover.

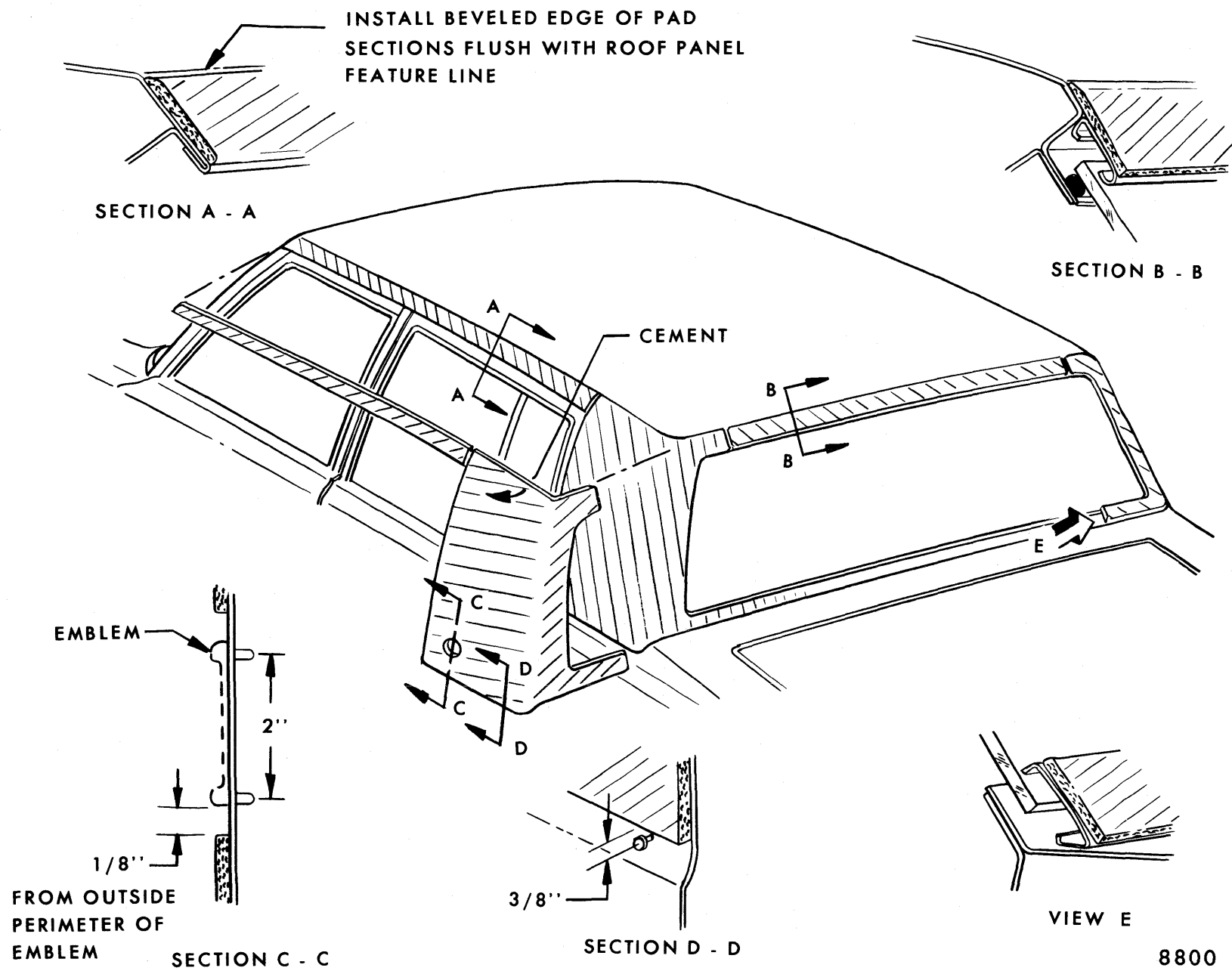
- a. Front and back window reveal moldings.
- b. Roof drip moldings.
- c. Quarter belt reveal moldings.
- d. Roof extension panel emblem.
- e. Lower back window reveal molding.

2. Remove drive nails in windshield opening at seam locations.

CAUTION: When removing drive nails, the edge of glass must be protected. Two layers of cloth body tape will provide necessary protection.

NOTE: Drive nails can best be removed by first driving a flat blade screwdriver under the nail head to loosen. Diagonal cutters or similar tool

Fig. 8-11-Foam Pad Installation



can be used to grasp nails and twist them out. Unnecessary enlargement of holes in roof panel should be avoided.

3. Completely mask off areas of roof panel which are not covered by roof cover. Mask 3/16" below weld studs at quarter and rear belt line, windshield glass, back window, all doors and flat painted surfaces (hood, rear compartment lid, etc.).
4. Using a suitable tool such as window reveal molding tool J-21549 or equivalent, carefully work cover from under hidden back window reveal molding.
5. Apply heat to outer edge of roof cover to aid loosening. Heat can be applied with a hot air gun held approximately one inch (1") from the roof cover and rotated in a circular motion. Heat lamps can also be used if held a minimum of eighteen inches (18") from the cover.
6. Loosen all cemented edges of roof cover, then, carefully loosen and remove the roof cover and the foam pads. As an aid in removing foam pad, insert a putty knife or similar flat-bladed tool between the roof panel and foam pad.

Installation - Foam Pads (Refer to Fig. 8-11)

1. Check roof panel for excessive pad material and adhesive. In the event any metal finishing is performed on roof panel, repair area must be painted.

NOTE: It is not necessary to remove all old pad material and adhesive. However, enough should be removed to prevent highlighting through the roof cover assembly.

2. Apply an even application of nitrile non-staining adhesive, such as Huges HC-4183, 3M 8064 or equivalent to back side of pad sections and to corresponding cementing surface on roof panel.

It is recommended that the vinyl trim adhesive be applied with a spray gun. As an alternate method, a brush or roller may be used. If spraying method is utilized, a spray gun along with the following equipment or equivalent should be used.

- a. Devilbiss Spray Gun Model MBC-510 or JGA-502 with one (1) quart pressure cup KB-519, air cap 24, fluid tip and fluid needle "E" (or equivalent).

- b. Binks Spray Gun Model 62 one (1) quart pressure cup 80-256 (or equivalent) or Spray Gun Model 18 one (1) quart pressure cup 80-210 (or equivalent). Air cap 66 PG and fluid tip 66 (or equivalent) may be used with either gun. On Spray Gun Model 62 use fluid needle 365 and on Gun Model 18 use fluid needle 65 (or equivalent).

- c. The recommended air pressures are as follows:

1. Air line pressure - 50 lbs.
2. Cup pressure - 2 to 4 lbs.

NOTE: Previously mentioned vinyl trim adhesives (or their equivalents) are of spraying consistency. If adhesive is applied with a roller, a mohair type roller should be used. Make certain adhesive is applied evenly and there are no high-lights from excessive build-up.

3. Allow adhesive 3 to 5 minutes to become tacky. Align beveled edge of pads flush with roof feature line, then cement pad sections to roof panel.
4. As pad is being cemented, it should be thoroughly "slicked" down to avoid wrinkles and bubbles.

CAUTION: To correct a misaligned or wrinkled condition may result in damage to pad and cause considerable time to cut out old foam and patch in new.

5. Repeat operation to other half of roof and above back window, making certain quarter extension pad butts roof side and back window upper pads.
6. Apply adhesive to outer surface of lower back window reveal molding.
7. Trim excessive pad material as follows:
 - a. In front and rear door opening flush with edge of roof and body lock pillar.
 - b. 3/8" inboard of weld studs at quarter belt.
 - c. Around back window flush with inner edge of reveal molding.
 - d. Around roof extension panel emblem location.
 - e. Trim pad material on lower back window reveal molding flush with outer edges of top surface.

Installation - Roof Cover (Refer to Fig. 8-13)

NOTE: Where possible, install new roof cover at room temperature (approximately 72 degrees) to permit easier fitting and removal of wrinkles from new cover assembly. Fabric roof cover pliers (Fig. 8-12) or equivalent tool will aid in removing wrinkles.

1. The integral padded fabric roof cover cannot be pulled to the extent that a non-padded roof can be pulled to compensate for a misaligned condition. Therefore, it is extremely important that before installing (cementing) the cover it be properly positioned on the roof, then reference marked for centering and fore and aft positioning.
2. Using tape or a suitable marking pencil determine center line of roof panel and cover seam locations at windshield and back window, 21-1/8" from center line of roof.
3. Lay cover on roof panel and fold cover lengthwise precisely at center location. Mark center location at front and rear of cover.

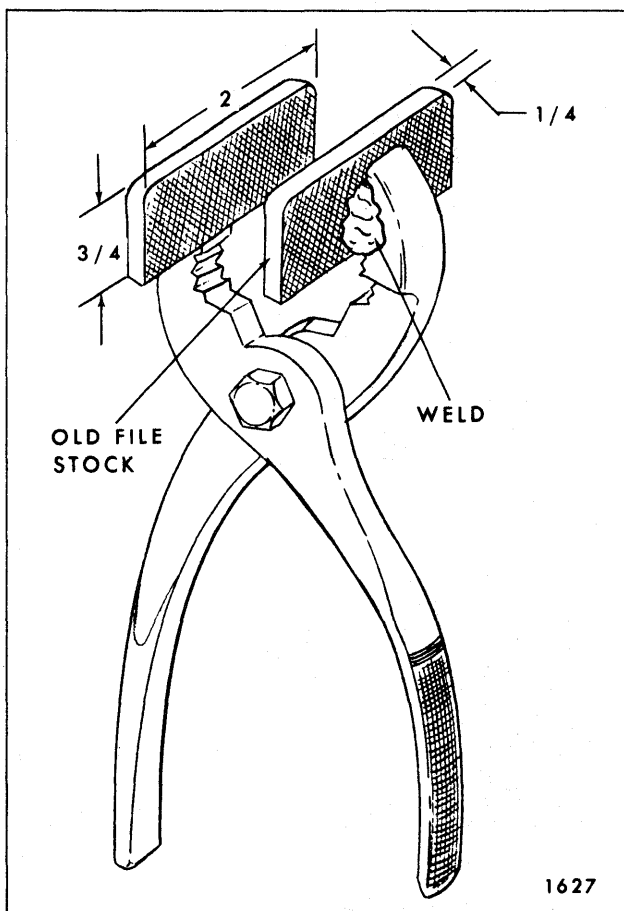


Fig. 8-12-Fabric Roof Cover Pliers

4. Align cover to roof panel center line reference. Determine material overhang at front and back window openings.

5. Fold cover lengthwise to expose approximately a 4" wide area along center of cover and corresponding cementing surface on roof panel.

6. Apply an even application of adhesive such as Hughes HC-4183, 3M 8064 or equivalent along center of cover and corresponding surface on roof panel.

CAUTION: *Excessive adhesive will trap solvents under the cover and may cause blistering due to delamination of vinyl from pad.*

7. Allow adhesive 3 to 5 minutes to become tacky, then cement center area to roof panel.

NOTE: Make certain cover is free of wrinkles and properly aligned; however, do not pull too hard on material as padding could separate causing wrinkles and/or highlights. Fabric roof cover pliers, or an equivalent tool, may be used in aiding removal of wrinkles.

8. To install remainder of roof cover, fold one half of cover back along center seam, apply adhesive to back of cover and to roof panel (including pads). Do not include quarter extension area pads.

9. Starting along center and working toward drip molding, cement cover to roof while adhesive is tacky. As cover is being "unfolded" and cemented, it should be thoroughly "slicked" down to avoid wrinkles or air bubbles.

10. Repeat step 9 on opposite side of roof panel.

NOTE: Make certain that cover is free of wrinkles and seams are straight.

11. Apply adhesive to roof cover and to corresponding cementing surface in quarter extension area. Also, brush a double coat of adhesive around edge of cover.

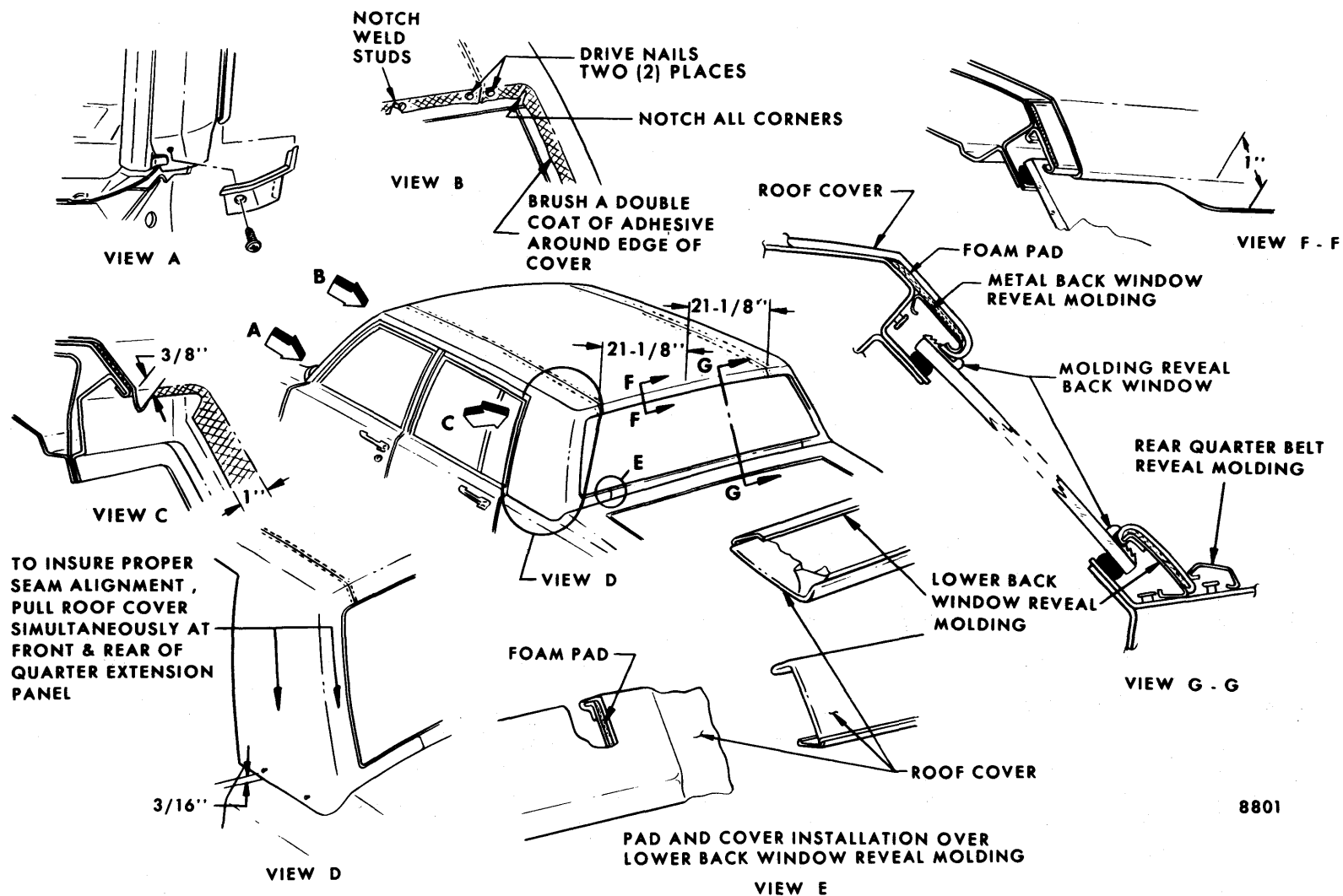
12. Cement cover to roof in areas where adhesive was applied, making certain that the entire roof cover is free of wrinkles.

13. Protect edge of glass and carefully install drive nails as low in front window as possible.

NOTE: It is best to use an awl or similar tool to initiate a hole in metal. Strike drive nails only hard enough to seat them.

14. Trim excess roof material at quarter and rear

Fig. 8-13-Roof Cover Installation



end beltline 3/16" inboard of weld studs using a sharp knife or scissors.

CAUTION: *Be certain paint is not damaged while performing trimming operation.*

15. Trim cover 3/8" on underside of pinchweld flange and inside of body lock pillar approximately 1" beyond quarter extension panel.
16. Trim cover in windshield, notching cover in corners and at weld studs.
17. Pierce cover at emblem location.
18. Trim excess material 1" beyond edge of back window reveal molding. Tuck material under reveal molding using headlining tool J-2772 or similar flat-bladed tool.
19. Apply a continuous bead of silicone sealant such as Dow Corning Automotive or equivalent between back glass and molding.
20. Remove all previously installed protective covering from windshield, back glass and body.
21. Install all previously removed moldings and assemblies.

Removing Wrinkles From Fabric Roof Cover

Fabric roof cover wrinkles that do not recover on their own accord after a relative short exposure to sunlight (several days) can be corrected as described in the following procedure.

However, wrinkles in the center roof panel area which cannot be ironed out will require replacement of the fabric cover. Loosening of the fabric roof cover in the large center roof area may cause damage to the foam pad and distortion in the integral padded material, making it extremely difficult to correct wrinkles.

As most wrinkles can be ironed out using a household type iron, it is recommended that this method be used first. If ironing does not correct the condition, it will be necessary to loosen the fabric cover from the roof panel to pull out the wrinkles.

1. Apply a clean dampened shop cloth over wrinkled area.

2. Using a household type flat iron with heat control set for medium heat (cotton or lower), iron wrinkled area.

CAUTION: *Keep iron in motion. Do not allow cloth to become dry as excessive heat will damage the vinyl material.*

3. Continue ironing operation until wrinkles are removed or it becomes apparent that ironing alone will not correct the condition.

If wrinkles remain, proceed with next step.

4. Remove moldings adjacent to wrinkled area.
5. Apply heat to edges of cover to aid loosening. Heat can be applied with a hot air gun held approximately one inch (1") from the cover and moved in a circular motion. Heat lamps can also be used held a minimum of eighteen inches (18") from the cover.

CAUTION: *Excessive heat over 200 degrees may cause the roof cover to lose its grain, blister or become shiny.*

6. Using a pair of pliers carefully loosen edges of roof cover.
7. If wrinkles are adjacent to windshield opening, separate the wrinkled area from roof panel by applying heat with a hot air gun and simultaneously pulling on cover, or by using a flat-bladed tool such as a putty knife.

When wrinkles are in the foam pad area use a sharp knife or razor and carefully separate the roof cover from the foam pad.

8. Make certain bonding surfaces are free of sealer and other foreign material around door openings prior to applying adhesive in step 9.
9. Brush an application of a non-staining vinyl trim adhesive such as Hughes HC-4183, 3M Adhesive No. 8064 or equivalent to cementing surfaces.
10. Allow adhesive to become tacky; then, hand stretch and "slick" cover in place. Fabric roof cover pliers, or an equivalent tool, may be used in aiding removal of wrinkles.
11. Replace moldings and clean soiled areas.

FABRIC ROOF COVER REPAIR

DESCRIPTION

The roof cover material is a vinyl coated integral padded material which exhibits a grain pattern in the exterior vinyl surface. In the event the vinyl surface becomes damaged (cut, scuffed, gouged or torn), it is possible in most cases to make repairs without removing the cover assembly from the roof panel.

The procedures which follow describe two separate methods, patching and fusing, used to repair fabric roof covers.

It is recommended that repairs be limited to cuts, or tears no longer than one-half (1/2") inch and other type of damage no larger than one-quarter (1/4") inch in diameter. In addition, damage should be confined to edge of cover such as adjacent to roof drip and reveal moldings.

PATCHING PROCEDURE UTILIZING FABRICATED PLASTIC GRAINING DIE

Equipment and Material Requirements (Refer Fig. 8-14)

The following describes the materials and equipment required to repair minor damage when the vinyl is missing.

1. Plastic Body Filler and Hardener - a two-part material for fabricating a graining die with an impression of the grain present in the vinyl surface of the fabric roof cover.

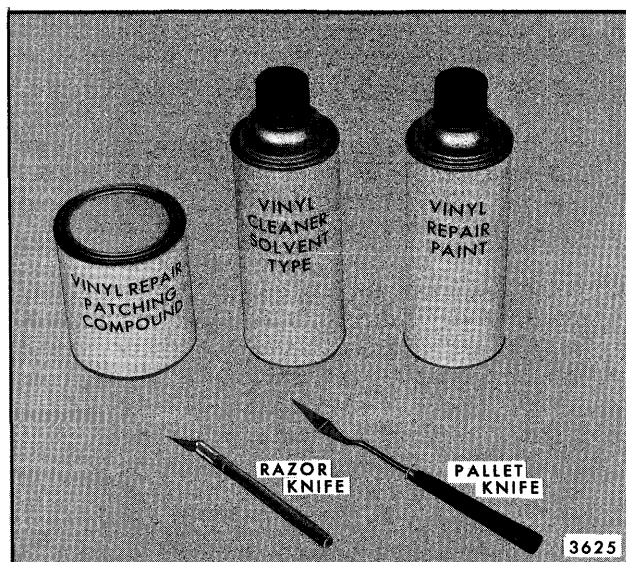


Fig. 8-14-Fabric Roof Cover Repair Materials and Tools

2. Liquid Detergent Cleaner - all-purpose cleaner for removal of surface dirt, grease, dust, etc.
3. Vinyl Cleaner (Solvent Type) - for removal of wax, silicone, oil, etc., from repair area.
4. Vinyl Repair Patching Compound - a heat curing, milky colored, heavy-bodied plastisol for repairing damaged area.
5. Vinyl Repair Paint - an approved, durable, waterproof, weather resistant, pliable vinyl paint for final color refinishing.
6. Pallet Knife - a small trowel for applying patching compound to repair area.
7. Hot Air Gun and Heat Control Nozzle - used to cure vinyl patching compound, preferably 500 to 700 degrees heat range and aid in removing roof cover (Fig. 8-15).
8. Razor Knife or Scissors - used for trimming loose fibers from damaged area.

Repair Procedure

1. To fabricate a graining die, select a scrap piece of roof cover material of the same grain design as area being repaired. Clean grain surface using a detergent type cleaner and allow the surface to dry completely while molding compound is being mixed.
2. Using a non-porous mixing surface, mix the plastic body filler as instructed on container label as follows:

NOTE: A porous mixing surface, such as cardboard, will absorb the hardening agent. This will cause improper curing of hardener.

- a. With a thin-bladed tool, spread the mold compound on previously prepared grain surface. Maintain a 1/8 inch thick application, approximately 2 inches wide and 6 inches long. Spread material from the center toward outer edges. Immediately after application of mold material, place a scrap piece of vinyl material, cloth side down over mold and apply light finger pressure. The mold will cure in 10 to 15 minutes. Heat may be applied to accelerate curing process.
- b. After curing, the entire mold can be removed from roof cover. Trim excess vinyl backing

and any area that is unsatisfactory in grain pattern (outer edges of mold).

3. Using a soft lint-free cloth, wipe the repair area with liquid detergent for removal of surface dirt, grease, etc., or a solvent type vinyl cleaner for removal of wax silicone.
4. Remove moldings.
5. Mask off area adjacent to damage.
6. Using pliers or similar tool, carefully loosen edge of roof cover up to roof break line (Fig. 8-16).
7. Pull cover up to expose edge of foam pad. Using a very sharp knife or razor blade, carefully cut cement bond between fabric roof cover and foam pad (Fig. 8-18).

CAUTION: Steps 6 and 7 should be performed with extreme care to prevent damage to roof cover. Tearing of foam pad during this operation may require considerable extra time to cut out old foam and patch in new foam to provide a smooth appearance along edge.

8. Apply heat sparingly between roof cover and pad to permit easier separation of cement bond (Fig. 8-17).
9. Tape back of damage using black waterproof tape.
10. Back up damage with a hard surface such as a metal plate.
11. Utilizing a razor knife, scalpel or other suitable tool, trim any frayed edges from damaged area. A slight tapering angle of the repair surface walls provides greater surface for filler adhesion.
12. The vinyl patching compound is applied (using a pallet knife) in a succession of thin layers to the repair area. Cure material thoroughly after each layer with hot air gun. Continue to apply patching compound until the top layer is flat to the surrounding surface level.
13. Thorough curing of patching compound is necessary for proper adhesion of each layer and can be accomplished with use of a heat gun. The filler is a milky substance which becomes almost transparent when properly cured. Heat should be directed to the repair area until the compound becomes transparent.

CAUTION: Too much heat can result in loss

of grain texture. To avoid overheating, attention should be given to the vinyl being exposed to heat. As heat is applied, the adjacent vinyl areas will begin to show a glossy appearance. When this occurs, the vinyl has reached working temperature. Further heating will result in loss of grain.

14. Perform graining operation as follows:

- a. After the last layer of filler material has been cured, the graining operation is performed.

This operation must be performed prior to cooling of filler material. Using hot air gun, apply heat directly on repair area. Continue heat application until vinyl begins to become glossy. At this temperature, successful graining can be achieved.

- b. After heat has been applied, press the graining die into the soft vinyl. If possible, graining should be accomplished on the first attempt. To minimize loss of pattern uniformity, apply steady, even pressure to the back of graining die to provide an even impression.

15. When graining has been completed, the repair area is ready for application of vinyl paint (solid colors) as follows:

- a. Using a soft lint-free cloth, wipe the repair area with solvent type vinyl cleaner to remove any wax, silicone, oil, etc., which may be present.

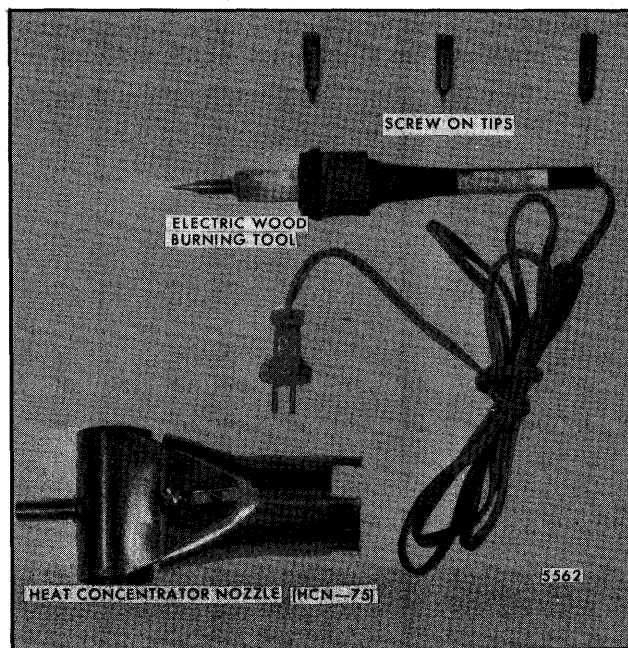


Fig. 8-15-Wood Burning and Heat Concentrator Tool

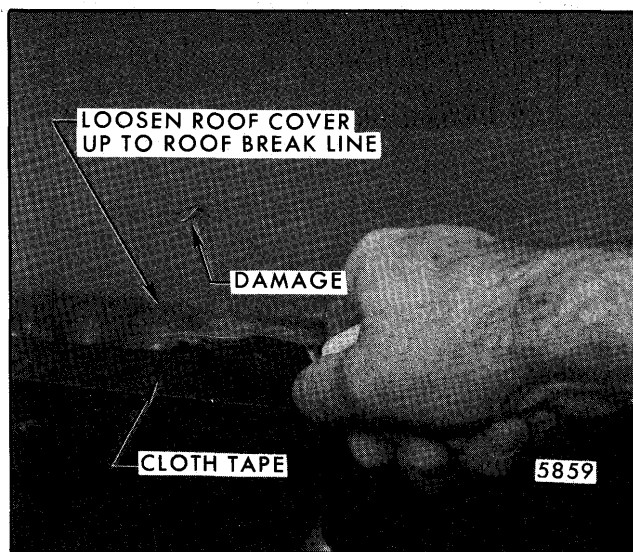


Fig. 8-16-Loosening Edge of Roof Cover Foam Pad

- b. Thoroughly mix the vinyl color according to instructions on the container. If an aerosol type container is used, pre-test spray pattern on a piece of paper; then apply vinyl color to repair area with two or three light passes. Use a "fanning" motion to create a feathering condition around the perimeter of the spot repair.

NOTE: Heavy wet coats of paint must be avoided.

16. Allow paint to dry.
17. Brush an even application of a non-staining adhesive, such as Hughes HC-4183, 3M 8064 or

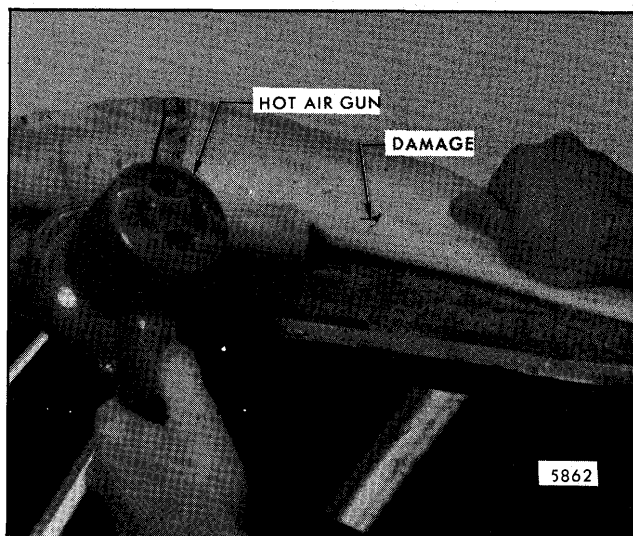


Fig. 8-17-Separating Roof Cover From Foam Pad - Heat Application

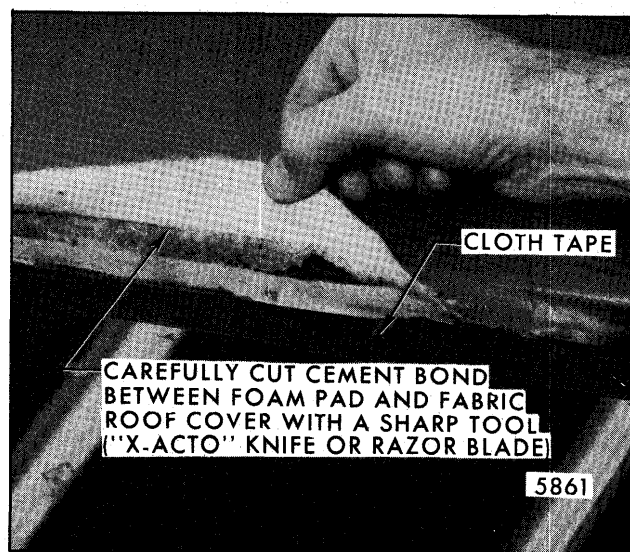


Fig. 8-18-Cutting Cement Bond Between Roof Cover and Foam Pad

equivalent, to roof cover and foam pad. Allow adhesive to become tacky, then, pull cover taut and cement cover in place.

CAUTION: *Excessive adhesive will trap solvents under the roof cover and may cause blistering due to delamination of vinyl from felt backing.*

NOTE: Make certain cover is free of wrinkles. Do not pull too hard on material as wrinkles or highlighting could result. Vinyl roof cover pliers, or an equivalent tool, may be used in removing wrinkles.

FUSING PROCEDURE - FOR CUTS, SCUFFS, GOUGES

Equipment and Material Required

Electric wood burning tool with screw-on tips - used for smoothing cuts, scuffs and gouges. Also, hot air gun, vinyl cleaner (detergent type) and fabricated graining die as described in repair procedure using plastic graining die.

Repair Procedure

1. Clean area to be repaired as described in step 3 under "Patching Repair Procedure".

CAUTION: *Protect adjacent painted surfaces.*

2. Trim repair area. Any pad fibers that protrude

above the damaged area, can be worked back under the vinyl with a pallet knife or similar flat blade tool. Any additional loose fibers should be trimmed off.

NOTE: Trimming should be kept to a minimum. A small amount of nitrile vinyl trim adhesive can be applied to the damaged area to hold it in place.

3. Fuse damaged area using an electric wood burning tool. In some cases, vinyl must be added to damaged area. Using wood burning tool, scrape vinyl material from a scrap piece of vinyl roof cover and fuse into the damaged area.

Variable heat control tool J-23091-3 or equivalent may be used to control heat of electric wood burning tool. Set heat control unit at 75 on the dial indicator (approximately 375 degrees).

Test this setting on a piece of scrap vinyl. Adjust heat control as required. The electric wood burning tip should be kept clean and lubricated.

4. Restore grain to the damaged area by one the following methods:

- a. Using wood burning tool, grain the damaged area to the original grain in the cover.
- b. Using a hot air gun with heat control nozzle attached, apply heat to the damaged area. Hold hot air gun approximately one inch (1") from the damaged area, rotating gun in a circular direction.

CAUTION: *Overheating should be avoided as previously noted under "Patching Repair" procedure.*

- c. After heat has been applied, press the graining die into the soft vinyl. If possible, graining should be done on the first attempt. A steady even pressure on the back of the graining die will minimize the loss of grain.
 - d. If necessary, graining can be improved by carefully going over the damaged area with a wood burning tool, matching the existing grain.
5. When graining has been completed, the repair area is ready for painting, as previously described in step 15 of "Patching Repair" procedure.

SECTION 9

SEATS

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FRONT AND REAR SEATS

FRONT SEATS - INTRODUCTION

Figure 9-1 illustrates the 50-50 type front seat used in this model Cadillac. The 50-50 front seat consists of a split front seat with both the driver and passenger seat individually controlled - Six-way power adjusters on the driver's seat and two-way power adjusters on the passenger's seat. Split type individually controlled center armrest will be used on the front seat with the left half of the armrest attached to the driver's seat back and the right half attached to the passenger's seat back. The passenger's seat features a reclining seat back which can be reclined rearward approximately 20 degrees operating the control lever located at the outboard side of the seat cushion. When the front of the control lever is lifted upward, the spring-loaded reclining unit, located in the right side of the seat cushion, is released, allowing the seat back to be pushed rearward or allows the spring-loaded reclining unit to bring the seat back forward.

The driver's and passenger's seat backs are equipped with an adjustable head restraint. The head restraints

are designed so they cannot be removed from the seat back without using a special tool (See **FRONT SEAT BACK HEAD RESTRAINT - Removal and Installation**); however, the head restraints can be raised or lowered for proper positioning by depressing the lock lever on the head restraint post escutcheon.

The front and rear seat cushions and backs incorporate formed foam pads, formed to fit the contours of the full panel seat back frame assembly and also the designed contour of the seat cushion.

The driver's seat is equipped with power operated six-way seat adjusters operated by a six-way seat control switch located in the left front door armrest. The passenger seat is equipped with power operated two-way seat adjusters operated by a two-way control switch located in the right front door armrest.

FRONT SEAT DEALER RELOCATION PROVISIONS

There are NO front seat dealer forward or rearward



Fig. 9-1-50-50 Type Front Seat

relocation provisions provided at either seat adjuster-to-floor pan attachments or seat adjuster-to-seat frame attachments.

CAUTION: *DO NOT* attempt to change the

designed seat position by altering the designed seat adjuster-to-floor pan anchor provisions or seat adjuster-to-seat frame anchor provisions as it could affect the performance of the seat system.

SEAT TORQUE SPECIFICATIONS

The following torque specifications should be used when servicing seat assemblies:

BOLT OR NUT LOCATION AND TORQUE - FOOT POUNDS

NOTE: Some service replacement assemblies such as seat cushion and back frame assemblies and rear compartment pan assembly may have unthreaded nuts for attachment of seat adjusters, seat back and lap belts. These unthreaded nuts must be tapped with proper size and threaded tap or either the original or a new thread forming bolt must be used. If thread forming bolts are used, apply 15 to 20 pounds of straight in pressure to start thread forming action of bolt.

1. Seat Adjuster-to-Floor Pan Bolts or Nuts - 12-18 foot pounds.

2. Seat Adjuster-to-Seat Frame Bolts - 12-18 foot pounds.
3. Seat Back to Cushion Frame Bolts - 16-22 foot pounds.
4. Lap Belt-to-Floor Pan Anchor Bolts and Single Loop Lap and Shoulder Belt Retractor-to-Center Pillar Attaching Bolt - 35-45 foot pounds.

CAUTION: *Seat attaching parts such as seat adjuster-to-floor pan bolts or nuts, seat adjuster-to-seat frame bolts, seat cushion frame-to-seat back frame bolts, etc., are important attaching parts in that they could affect the performance of vital components and systems. They must be replaced with one of the same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of these parts.*

POWER OPERATED TWO-WAY OR SIX-WAY SEAT ADJUSTER MECHANICAL DIAGNOSIS CHART

NOTE: If it is apparent or suspected that the trouble is in the electrical system, refer to "Electrical Section - Power Seats - Diagnosis Chart".

CONDITION	APPARENT CAUSE	CORRECTION
1. Horizontal operation of seat not smooth (jerky) - apparent hard operation.	<ol style="list-style-type: none"> 1. Improper lubrication of adjuster shoes, channels or horizontal jackscrew on two-way power adjusters. 2. Adjuster horizontal actuator gear too tight to rack gear (six-way adjusters). 3. Adjuster shoes too tight in upper channel. 4. Defective horizontal gearnut or gearnut improperly installed (two-way power adjusters). 	<ol style="list-style-type: none"> 1. Lubricate adjuster upper channel and plastic shoes or horizontal jackscrew on two-way power adjusters. 2. See "Horizontal Actuator Adjustment". 3. Install new shoes on adjuster lower channel. 4. Check installation of horizontal gearnut. Replace gearnut if defective.

POWER OPERATED TWO-WAY OR SIX-WAY SEAT ADJUSTER MECHANICAL DIAGNOSIS CHART

CONDITION	APPARENT CAUSE	CORRECTION
2. Horizontal chuck or looseness	<ol style="list-style-type: none"> 1. Horizontal actuator improperly adjusted to rack gear (six-way adjusters). 2. Loose horizontal gearnut or horizontal jackscrew (two-way adjusters). 	<ol style="list-style-type: none"> 1. See "Horizontal Actuator Adjustment". 2. Check and, where required, tighten horizontal gearnut and/or horizontal jackscrew.
3. One adjuster will not operate horizontally.	<ol style="list-style-type: none"> 1. Horizontal drive cable disconnected or damaged. 2. Horizontal actuator inoperative (six-way adjusters). 3. Horizontal gearnut inoperative (two-way adjusters). 	<ol style="list-style-type: none"> 1. Check horizontal drive cables, replace if damaged. 2. Replace horizontal actuator assembly. 3. Replace horizontal gearnut.
4. One adjuster will not operate vertically (six-way adjusters).	<ol style="list-style-type: none"> 1. Vertical drive cable disconnected or damaged. 2. Vertical gearnut inoperative. 	<ol style="list-style-type: none"> 1. Check vertical drive cables, replace if damaged. 2. Replace vertical actuator assembly.
5. Both adjusters will not operate horizontally and/or vertically (six-way adjusters).	<ol style="list-style-type: none"> 1. Inoperative horizontal and/or vertical solenoid in transmission. 2. Damaged, broken or inoperable solenoid plunger, shaft, dog, dog spring, gear or drive gear (see Fig. 9-10). 	<ol style="list-style-type: none"> 1. See "Electrical Section - Checking the Solenoid". 2. Replace damaged, broken or inoperable solenoid part with new part.
6. Vertical chuck or looseness (six-way adjusters).	<ol style="list-style-type: none"> 1. Excessive clearance at vertical gearnut tension spring. 	<ol style="list-style-type: none"> 1. Grind down top of vertical gearnut shoulder nut 1/64" to 3/64" maximum.

FRONT SEAT ADJUSTMENTS

At Floor Pan Attachment

A small amount of fore and aft or side adjustment is available at the seat adjuster-to-floor pan attaching bolts which can be utilized towards alignment of the seat assembly or alignment of the seat adjusters with each other.

This adjustment can be used to help correct the following conditions:

1. Hard or slow operation due to adjusters not being parallel with each other.
2. Seat assembly slightly too far to right or left.

Power Six-Way Seat Adjuster Horizontal Actuator Adjustment

With seat adjuster assembly installed on seat or seat assembly installed in body, horizontal movement (chucking) can be corrected by adjusting the horizontal actuator and pinion gear in tight to the adjuster lower track rack gear as follows:

1. Operate seat full "up" position and approximately 3/4 full forward position.
2. Loosen horizontal actuator attaching screws (see Fig. 9-2). Using a large screwdriver, inserted as shown in Figure 9-2, apply outward pressure on horizontal actuator (sufficient to equal 15 to 25 pounds on horizontal actuator) and at the same time energize horizontal switch to move

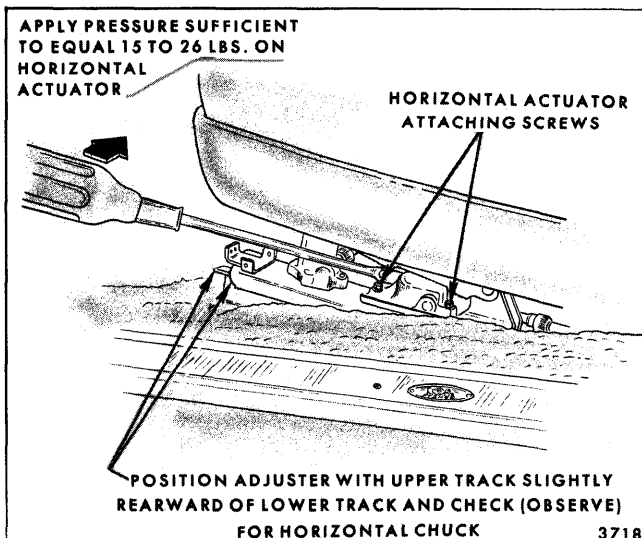


Fig. 9-2-Horizontal Actuator Adjustment - Power Six-Way Seat

seat fore and aft slightly; this helps seat the horizontal actuator pinion gear teeth tight to the lower track rack gear teeth and eliminate any free play between gear teeth. While maintaining outward pressure against horizontal actuator, tighten actuator attaching screws.

FRONT SEAT ASSEMBLY - POWER OPERATED PASSENGER'S TWO-WAY AND DRIVER'S SIX-WAY SEATS

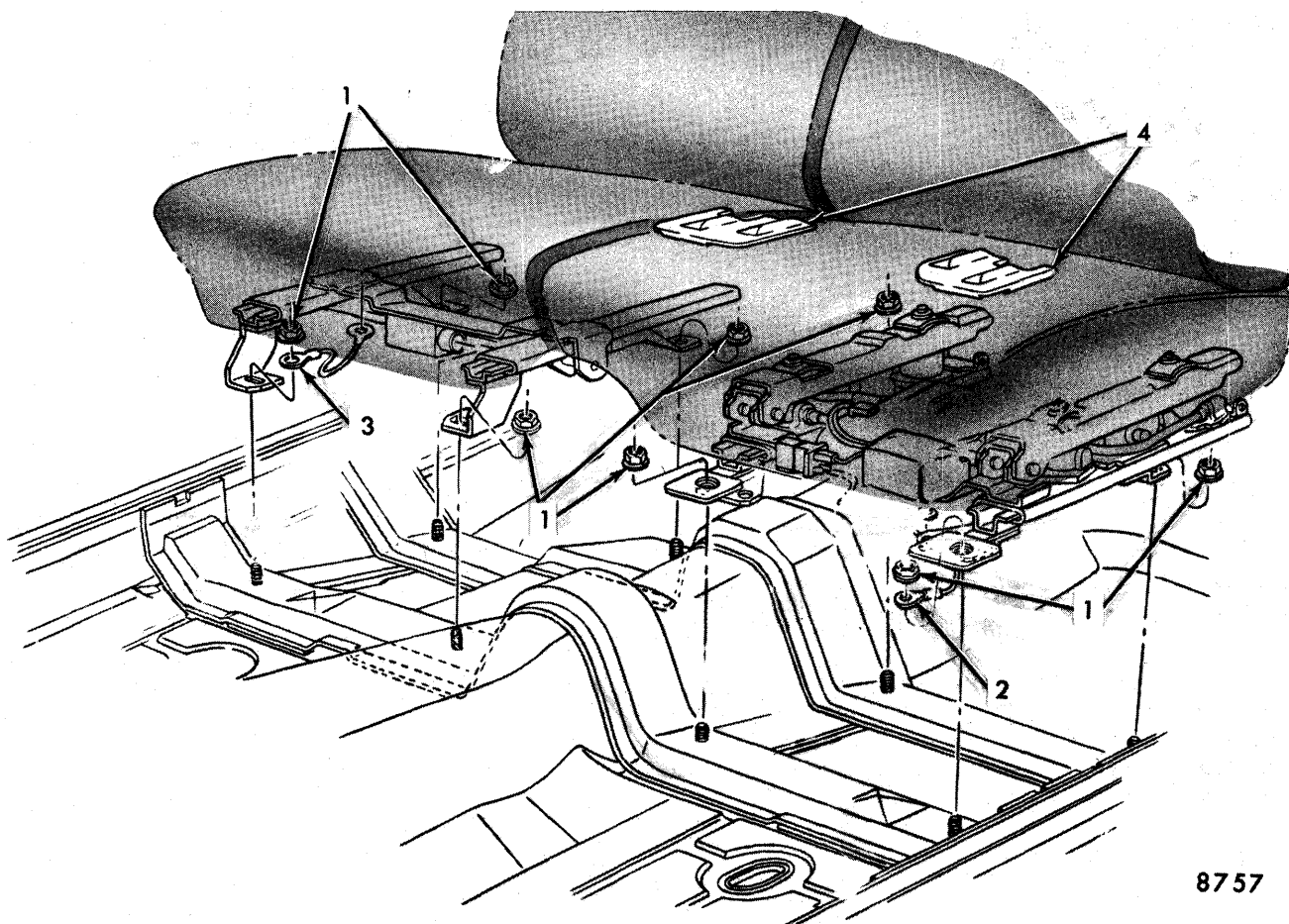
The power operated passenger's two-way and driver's six-way seat adjusters are actuated by a 12 volt, reversible, shunt wound motor with a built-in circuit breaker. The motor is energized by a toggle-type control switch located in the left front door armrest for the driver's six-way seat and in the right front door armrest for the passenger's two-way seat.

On driver's six-way power operated seats the seat operating mechanism has a transmission assembly which incorporates three solenoids and six drive cables to the seat adjusters. One solenoid controls the vertical movement of the front of the seat, the second solenoid controls the horizontal movement of the seat and the third solenoid controls the vertical movement of the rear of the seat. When the control switch is actuated, a double contact in the switch first energizes the correct solenoid which engages the solenoid plunger with the driving gear dog, then energizes the motor. The driving gear rotates the drive cables and operates both adjusters. When the adjusters reach their limit of travel, the drive cables stop their rotating action and torque is absorbed by the rubber coupler connecting the motor and transmission. When the control switch is released, a return spring returns the solenoid plunger to its original position, disengaging it from the driving gear dog.

SEAT ASSEMBLY (Driver's or Passenger's)

Removal and Installation - Refer to Fig. 9-3

1. If power on seat is operable, operate seat to full "forward" and "up" positions.
2. At rear of adjusters, remove adjuster-to-floor pan rear attaching nuts or bolts. Operate seat to full rearward position. Remove adjuster-to-floor pan front attaching nuts or bolts. Tilt seat assembly rearward and allow to rest on rear seat.
3. With seat tilted rearward, disconnect all electrical connectors between floor pan and seat.
4. With aid of a helper, remove seat assembly from car.



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Fig. 9-3-Seat Assembly (Driver's or Passenger's)

- | | | | |
|--|--------------------------------------|---|---------------------|
| 1. Seat Adjuster-to-Floor Pan Attaching Nuts | 2. Driver's Six-Way Seat Ground Wire | 3. Passenger's Two-Way Seat Ground Wire | 4. Carpet Retainers |
|--|--------------------------------------|---|---------------------|

CAUTION: During and after removal of front seats, extreme care should be taken to prevent any damage to wire harnesses and connectors both on the seat and in the body.

- Prior to installing seat assembly, check that both seat adjusters are parallel and "in phase" with each other. In the event the adjusters are "out of phase" (one adjuster reaches its maximum horizontal or vertical travel in a given direction before the other adjuster), phase adjusters as described under "Seat Adjuster Assembly - Removal and Installation"
- To install seat assembly, reverse removal procedure. Make certain that wire harnesses or connectors do not interfere with adjuster or seat mechanisms. Connect feed and seat harness wire

connectors under seat, also make sure ground wire is secured under seat adjuster rear attaching bolt or nut as shown in Figures 9-4 and 9-5.

NOTE: Tighten seat adjuster-to-floor pan attaching bolts or nuts 12 to 18 foot pounds. Check operation of seat assembly to full limits of travel.

DRIVER'S SEAT SIX-WAY ADJUSTER ASSEMBLY

Removal and Installation - Refer to Fig. 9-4

- Remove driver's front seat assembly with adjusters attached, as previously described, and place upside down on a clean, protected surface.

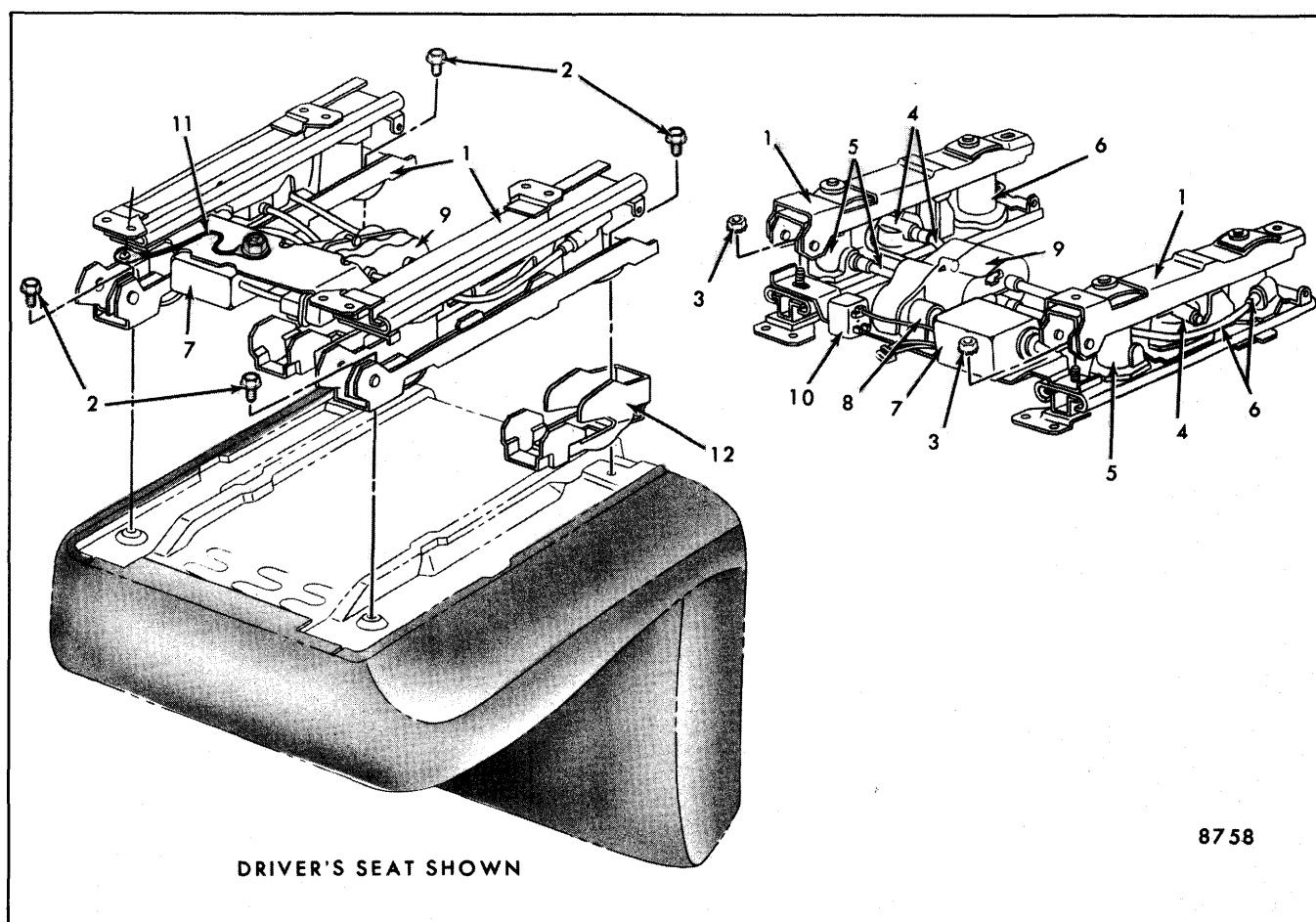


Fig. 9-4-Driver's Seat Power Operated Six-Way Seat Adjusters

- | | | | |
|--|--|---|-------------------------------------|
| 1. Six-Way Seat Adjuster | 4. Horizontal Actuator and Drive Cable (Black) | 6. Rear Vertical Gearnut and Drive Cable (Yellow) | 9. Transmission Assembly |
| 2. Seat Adjuster-to-Seat Frame Attaching Bolts | 5. Front Vertical Gearnut and Drive Cable (Blue) | 7. Electric Motor Assembly | 10. Motor and Transmission Relay |
| 3. Motor and Transmission Support Attaching Nuts | | 8. Motor-to-Transmission Rubber Coupling Cover | 11. Seat Ground Wire |
| | | | 12. Adjuster Track Rear Upper Cover |

2. On side from which adjuster is being removed, remove motor and transmission support nut and adjuster-to-seat bottom frame front and rear attaching bolts (see "3" and "2" in Fig. 9-4).
3. From adjuster being removed, disconnect drive cables; squeeze oblong plastic connector to detach.
4. To install, reverse removal procedure.

When installing power-operated seat adjusters, check that both adjusters are parallel and "in phase" with each other. In the event the adjusters are "out of phase" (one adjuster reaches its maximum horizontal or vertical travel in a given direction before the other adjuster), phase adjusters as follows:

1. Horizontal Travel - Operate seat control switch until one adjuster reaches full forward position. Detach horizontal drive cable from adjuster which has reached full forward position. Operate seat forward until other adjuster reaches full forward position; then, connect horizontal drive cable and check horizontal travel of seat.
2. Front or Rear Vertical Travel - Operate seat control switch until one adjuster has reached fully raised position at both front and rear vertical travel limits. Disconnect both front and rear vertical drive cables from adjuster which has reached the fully raised position. Operate seat control switch until other adjuster reaches the fully raised position at both front and rear vertical travel limits; then, connect previously

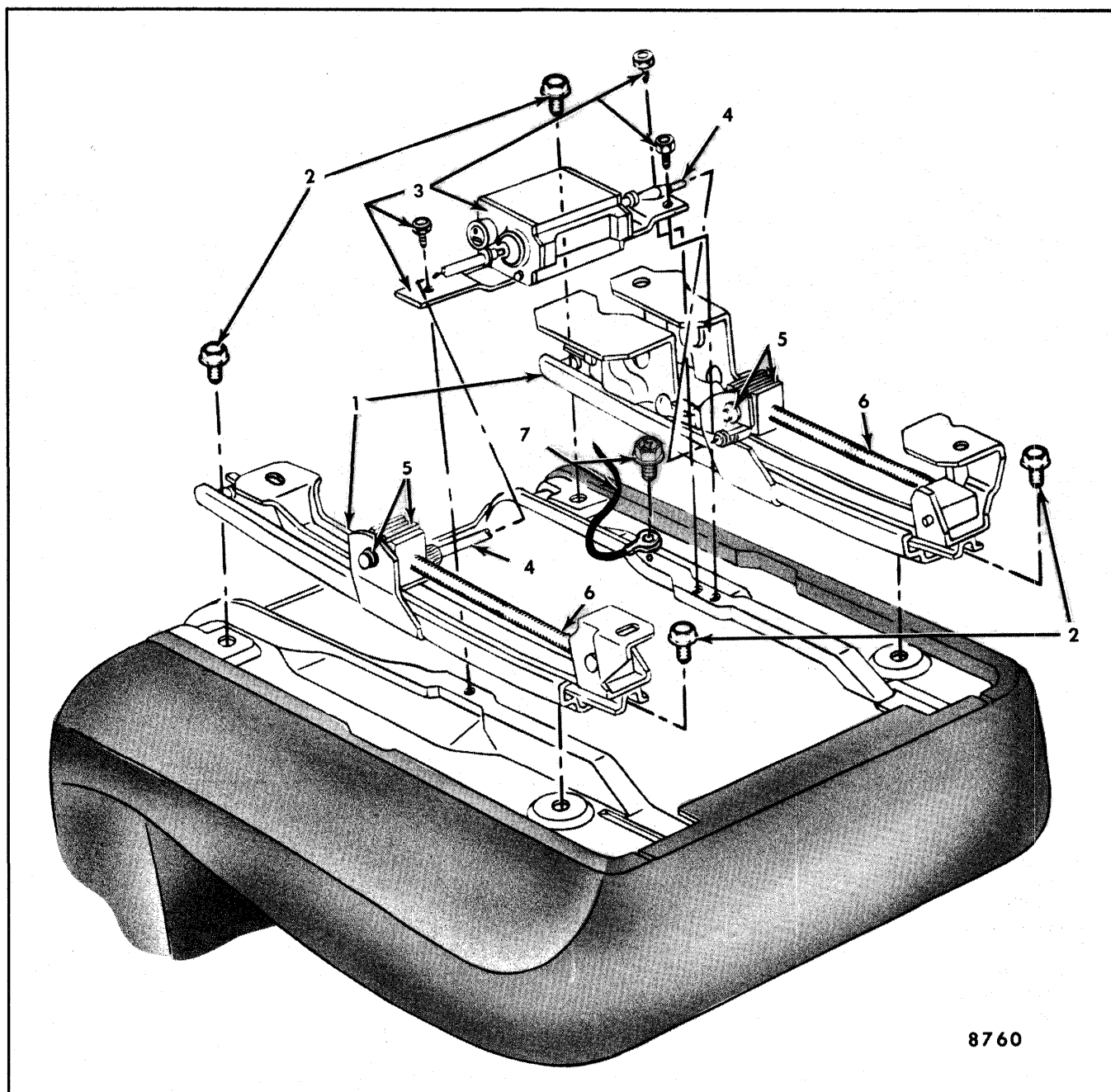


Fig.9-5-Passenger's Seat Power Operated Two-Way Seat Adjuster Installation

- | | | | |
|--|--|--|--|
| 1. Power Operated Two-Way Seat Adjusters | 2. Seat Adjuster-to-Seat Frame Attaching Bolts | 3. Electric Motor, Motor Support and Attaching Bolts | 5. Horizontal Gearnuts and Attaching Bolts |
| | | 4. Motor-to-Horizontal Gearnut Drive Cables | 6. Horizontal Jackscrew |
| | | | 7. Ground Strap and Attaching Screw |

removed front and rear vertical drive cables. Check vertical travel by operating adjusters through one or two complete cycles. The above operation may be repeated on an "as required" basis if adjusters do not appear to be "in phase" after test cycle.

CAUTION: The seat adjuster-to-seat frame attaching bolts are important attaching parts in that it/they could affect the performance of vital components and systems. They must be replaced with one of the same part number or with an equivalent part if

justers attached, as previously described, and place on a clean, protected surface.

2. From seat adjuster being removed, remove seat adjuster-to-frame attaching bolts (see "2" in Fig. 9-5).
3. Unscrew drive cable connector from adjuster being removed and remove adjuster from seat assembly.
4. To install, reverse removal procedure. Either prior or after installing adjuster(s) make certain adjusters are parallel (in phase) with each other. In the event the adjusters are out of phase (one adjuster reaches its maximum horizontal travel in a given direction before the other adjuster), phase adjusters as follows. Operate adjusters until one adjuster reaches full forward travel - if opposite adjuster is not at full forward travel, detach adjuster drive cable from adjuster which is at full forward position; then operate opposite seat adjuster forward until it reaches full forward travel and attach drive cable.

POWER OPERATED PASSENGER TWO-WAY SEAT ADJUSTER MAJOR COMPONENTS

The following service procedures cover replacement of the major component parts of the power operated passenger two-way seat adjusters.

ELECTRIC MOTOR AND/OR MOTOR SUPPORT - Power Operated Passenger Two-Way Seat

Removal and Installation - Refer to Figures 9-6 and 9-5

1. If seat is operable, operate seat to a midway position.
2. Remove front seat adjuster-to-floor pan attaching bolts and tilt seat rearward.
3. Disconnect feed wire harness from motor.
4. Remove screws that secure motor to motor support; then, disengage outboard (long) power drive cable from motor by carefully flexing cable sufficiently to disengage motor from both drive cables.
5. To remove motor support, remove one (1) motor support-to-adjuster attaching screw from both adjusters and remove support.
6. To install, reverse removal procedure. Check for proper seat operation to extreme limits of travel.

HORIZONTAL GEARNUT ASSEMBLY AND/OR JACKSCREW - Power Two-Way Passenger Seat

Removal and Installation - Refer to Figs. 9-5 and 9-6

1. If power adjusters are operable, operate seat midway between full forward and rearward position so that front and rear adjuster-to-seat frame attaching bolts are accessible. Remove front seat assembly with adjusters attached and place upside down on a clean, protected surface.
2. Remove adjuster from which gearnut is to be removed. If either front or rear seat adjuster-to-seat frame attaching bolt is inaccessible for removal due to position of adjuster, proceed as follows. Remove motor and motor support, detach power drive cable from gearnut being removed; then with a small screwdriver or other suitable tool hand turn gearnut sufficiently to move upper channel for access to adjuster-to-seat frame bolt and remove adjuster.
3. Using a "clutch" type screwdriver or other suitable tool, remove two shoulder bolts securing gearnut to support on upper channel portion of seat adjusters.
4. Remove seat adjuster to stop pin push-on retainer and remove stop pin.
5. Remove gearnut front stop spacer nuts, rubber spacers, and stop from end of jackscrew; then, remove gearnut from jackscrew by screwing jackscrew out of gearnut.
6. To install, reverse removal procedure. Prior to installing seat assembly in body, be sure adjusters are "in phase". See step 4 under "Passenger Front Seat Two-Way Adjuster Assembly Removal and Installation".

SIX-WAY DRIVER'S SEAT ADJUSTER MAJOR COMPONENTS

The following service procedures cover replacement of the major component parts of the power operated driver's six-way seat adjusters.

ELECTRIC MOTOR - Six-Way Seat

Removal and Installation

1. Remove front seat-to-floor pan attaching bolts and tilt seat rearward against rear seat.

2. Disconnect motor feed wires from motor control relay (see 10 in Fig. 9-4).
3. Remove motor-to-support attaching screws; then, move motor assembly outboard (away from transmission) sufficiently to disengage motor from rubber coupling.
4. To install, reverse removal procedure making sure rubber coupling is properly engaged at both motor and transmission. Check that seat harness is properly secured to seat. Check operation of seat to full limits of travel.

HORIZONTAL ACTUATOR - Six-Way Seat Adjusters

Removal and Installation - Refer to Figs. 9-7 and 9-8

1. Remove seat assembly from body, as previously described, and place upside down on a clean, protected surface. Remove affected adjuster assembly from seat as previously described.
2. At top of adjuster remove front and rear vertical gearnut attaching nuts and tension springs.
3. Lift front of adjuster upper channel upward; then remove screws securing horizontal actuator to adjuster upper channel assembly and remove actuator from adjuster.
4. To install, reverse removal procedure. When installing horizontal actuator, be sure actuator drive gear is fully engaged with teeth on lower channel. With actuator attaching screws tight, there should be no free motion between upper

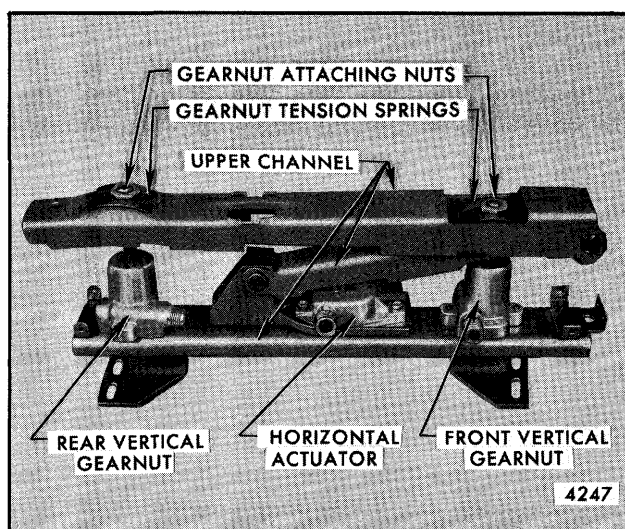


Fig. 9-7-Six-Way Seat Adjuster

and lower adjusting channels. Adjust actuator "as required" until all free motion between channels has been removed (see "Power Six-Way Seat Adjuster Horizontal Actuator Adjustment" under FRONT SEAT ADJUSTMENTS). Be sure seat adjusters are "in phase", before installing seat assembly into body. See step 4 under "Driver Seat Six-Way Adjuster Assembly - Removal and Installation".

FRONT AND REAR VERTICAL GEARNUT - Six-Way Seat Adjusters

Removal and Installation - Refer to Figs. 9-7 and 9-8

1. Operate seat to full forward position.
2. Remove front seat assembly from body as previously described and place upside down on a clean, protected surface. Remove affected adjuster assembly from seat as previously described.
3. At top of adjuster, remove both vertical gearnut

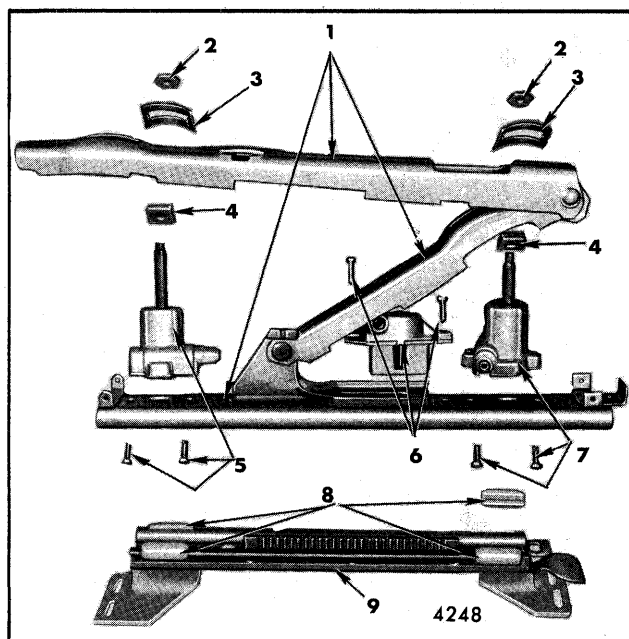


Fig. 9-8-Six-Way Seat Adjuster Components

- | | |
|---|--|
| 1. Upper Channel Assembly | 5. Rear Vertical Gearnut and Attaching Screws |
| 2. Upper Channel to Gearnut Attaching Bolts | 6. Horizontal Actuator and Attaching Screws |
| 3. Gearnut Tension Springs | 7. Front Vertical Gearnut and Attaching Screws |
| 4. Gearnut Shoulder Nuts | 8. Plastic Shoes |
| | 9. Lower Channel |

attaching nuts and tension springs.

4. Lay adjuster on its side and remove front vertical gearnut attaching screws; then, remove gearnut from adjuster.

NOTE: If seat was not in forward position when removed from car, it may be necessary to manually operate the horizontal actuator to gain access to vertical gearnut attaching screws on bottom of lower channel.

5. If front vertical gearnut is being replaced with a new part, transfer gearnut shoulder nut and tension spring to new gearnut assembly.
6. To install, reverse removal procedure. Be sure adjusters are "in phase" before installing seat assembly into body. See step 4 under "Driver's Seat Six-Way Adjuster Assembly - Removal and Installation".

LOWER OR UPPER CHANNEL AND PLASTIC SLIDES - Six-Way Seat Adjusters

Removal and Installation - Refer to Figs. 9-7 and 9-8

1. Remove seat assembly from body, as previously described, and place upside down on a clean, protected surface. Remove affected adjuster assembly from seat as previously described.
2. At top of adjuster, remove both vertical gearnut attaching nuts and tension springs. Lift front of adjuster upper channel upward; then, remove horizontal actuator attaching screws and remove horizontal actuator from adjuster.
3. Slide lower channel until it is completely disengaged from upper channel. Plastic slides may be removed from lower channel.
4. To install upper and lower channel, reverse removal procedure.
 - a. If replacing lower channel, transfer plastic slides to new lower channel.
 - b. If replacing upper channel, transfer vertical gearnuts to new upper channel.

NOTE: Make sure horizontal rack gear of lower channel and sliding surface of upper channel are properly lubricated with "Lubri-plate" (630AAW) or equivalent.

Make sure adjusters are "in phase" prior to installing seat assembly into body. See step 4

under "Driver's Six-Way Seat Adjuster Assembly - Removal and Installation".

Check operation of seat to limits of both horizontal and vertical travel.

HORIZONTAL AND VERTICAL DRIVE CABLES - Six-Way Seats

Removal and Installation - Refer to Fig. 9-9

1. Remove front seat assembly from body with attached adjusters, motor and transmission and place upside down on a clean, protected surface.
2. If removing the short front vertical or horizontal cables on the right side of seat, remove right seat adjuster. Detach cables from seat adjuster by squeezing oblong plastic connector and pulling cable off adjuster.
3. Remove screws securing horizontal and vertical cable end plate on side of transmission from which cables are being removed and remove cables from seat assembly; then, disengage cables from end plate.
4. To install horizontal and vertical color coded drive cables, reverse removal procedure. Make sure cables are properly engaged with transmission prior to installing transmission end plate. Check operation of seat adjusters to limits of horizontal and vertical travel.

TRANSMISSION - Six-Way Seats

Removal and Installation - Refer to Figs. 9-4 and 9-9

1. Remove front seat assembly with attached adjusters, motor and transmission as previously described and place upside down on a clean, protected surface.
2. Remove seat adjusters (see "Seat Adjuster - Removal and Installation").

NOTE: Using long nose pliers, disengage locking tab on harness portion of wire harness connector at transmission; then, disengage connector from transmission.

3. Remove transmission-to-support attaching screws and screws securing cable end plate on both sides of transmission; then, disengage transmission from motor drive coupling and cables and remove transmission from seat assembly.

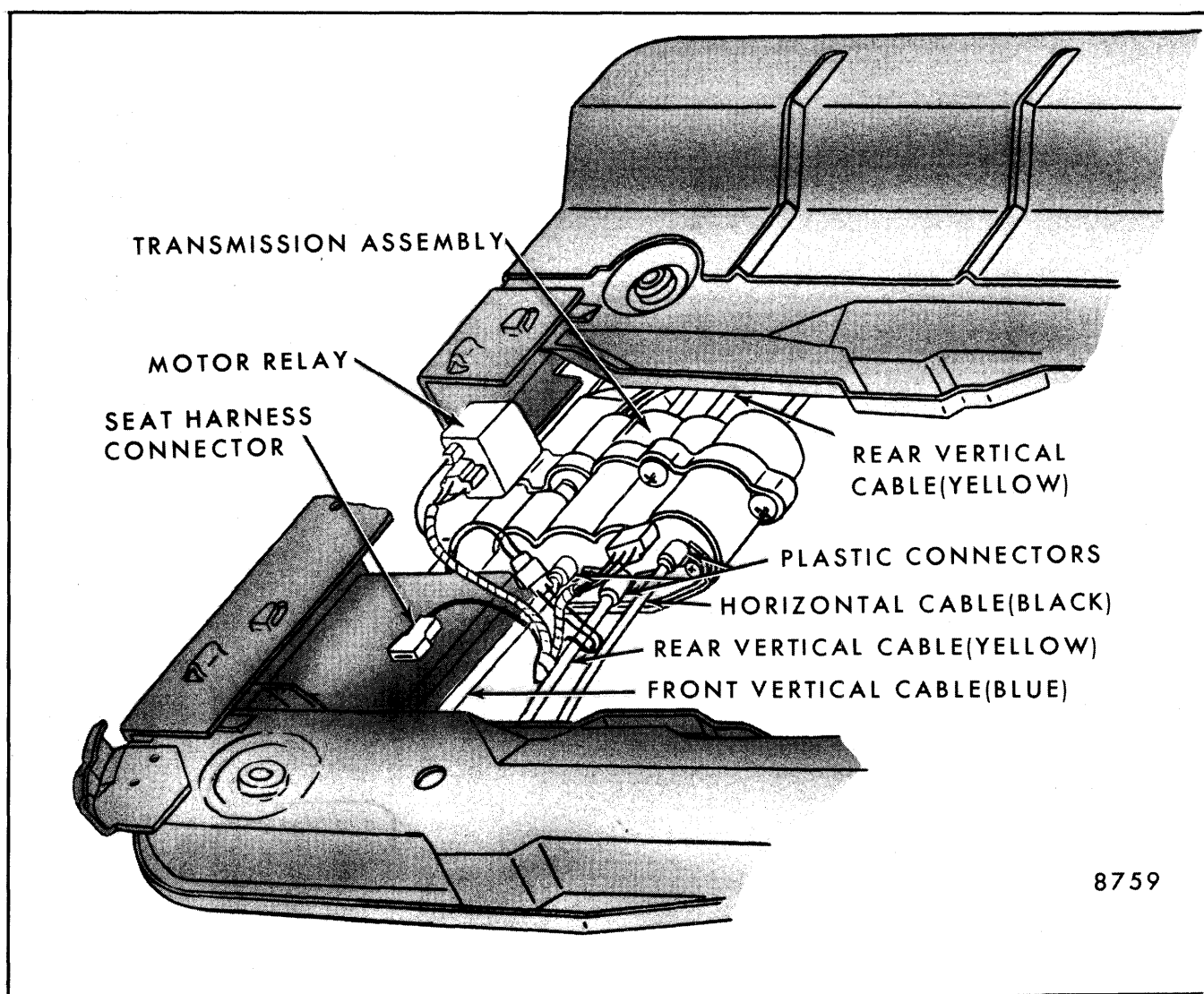


Fig. 9-9-Driver's Six-Way Seat Transmission, Drive Cables and Wire Harness

4. To install, reverse removal procedure. Install color coded drive cables as shown in Figures 9-4 and 9-9. Make sure cables are properly engaged with transmission prior to installing transmission end plates. Check operation of transmission and seat adjusters to limits of horizontal and vertical travel.

3. To assemble transmission, reverse removal procedure.

NOTE: Prior to or during installation, lubricate frictional surfaces of driving gear, idler gear, large gears, dog washers, gear shafts and solenoid plungers with "Lubriplate" (630AAW) or equivalent.

DISASSEMBLY AND ASSEMBLY OF TRANSMISSION

1. Remove front seat adjuster transmission from seat assembly.
2. Remove screws securing rear gear housing to the solenoid housing; then, carefully separate housings and remove component parts of transmission assembly (Fig. 9-10).

FRONT SEAT BACK ASSIST STRAP ASSEMBLY

Removal and Installation - Refer to Fig. 9-11

To remove and install the front seat back assist strap, or related components, remove components in numerical sequence.

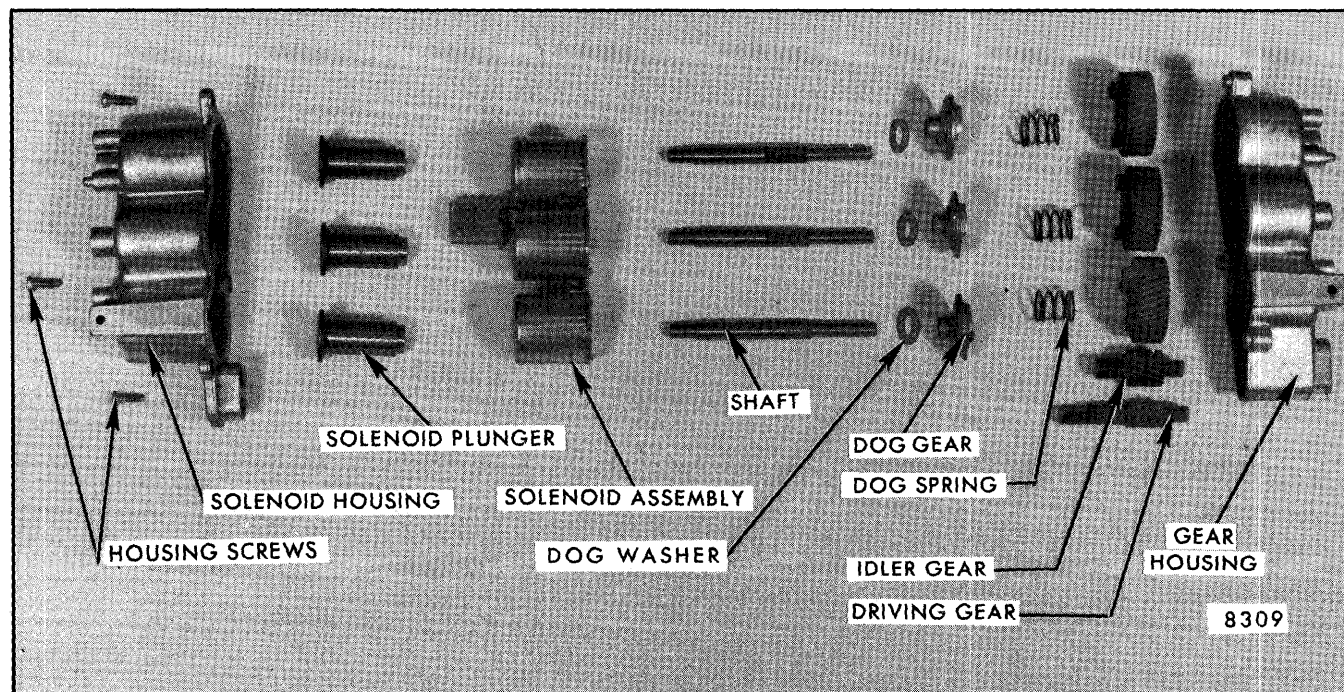


Fig. 9-10-Six-Way Seat Adjuster Transmission Component Parts

NOTE: To remove assist strap escutcheon cover carefully insert a thin flat-bladed tool between the strap assembly and escutcheon and press inward on tool to disengage cover from escutcheon. Then remove strap assembly attaching screw(s) and slide strap assembly from escutcheon(s).

FRONT SEAT BACK ASSEMBLY (Right or Left)

The passenger seat back incorporates a reclining seat back which can be adjusted approximately 20 degrees rearward of normal position.

The passenger reclining unit consists of a spring-loaded friction type cylinder and plunger located in right side of the passenger seat frame. The reclining unit is controlled by a lever type handle at the right side of the seat cushion. When the control handle is raised, the unit is unlocked and with no pressure on the seat back the spring loaded unit will move the seat back forward or the seat back can be tilted rearward by applying rearward pressure on the back. When the control handle is released, the reclining unit maintains the seat back in position; however, the seat back can be pushed forward to normal position without actuating the control handle.

Back Assembly - Removal and Installation

1. Remove seat back side outer cover panel secured by two screws (see Fig. 9-12).

2. Detach seat back trim at outer side facing sufficiently to remove seat back lock-out bolt (see Fig. 9-13).
3. Move seat back inward sufficiently to disengage inner and outer pins from cushion frame support (see Fig. 9-13); then, remove seat back from seat cushion.
4. To install seat back assembly, reverse removal procedure.

FRONT SEAT BACK RECLINING UNIT (Passenger Side)

Removal and Installation - Refer to Figs. 9-12 and 9-13

1. Remove passenger front seat assembly as described under "Front Seat Assembly - Removal and Installation" and place on clean, protected surface.
2. Remove reclining control handle (see Fig. 9-12). Detach seat trim side facing from right of seat cushion frame and turn back trim sufficiently to gain access to reclining unit front and rear attaching pin retainers.
3. Position seat back in a full reclined position; then, remove reclining unit front and rear attaching pin snap ring retainers (see Fig. 9-13)

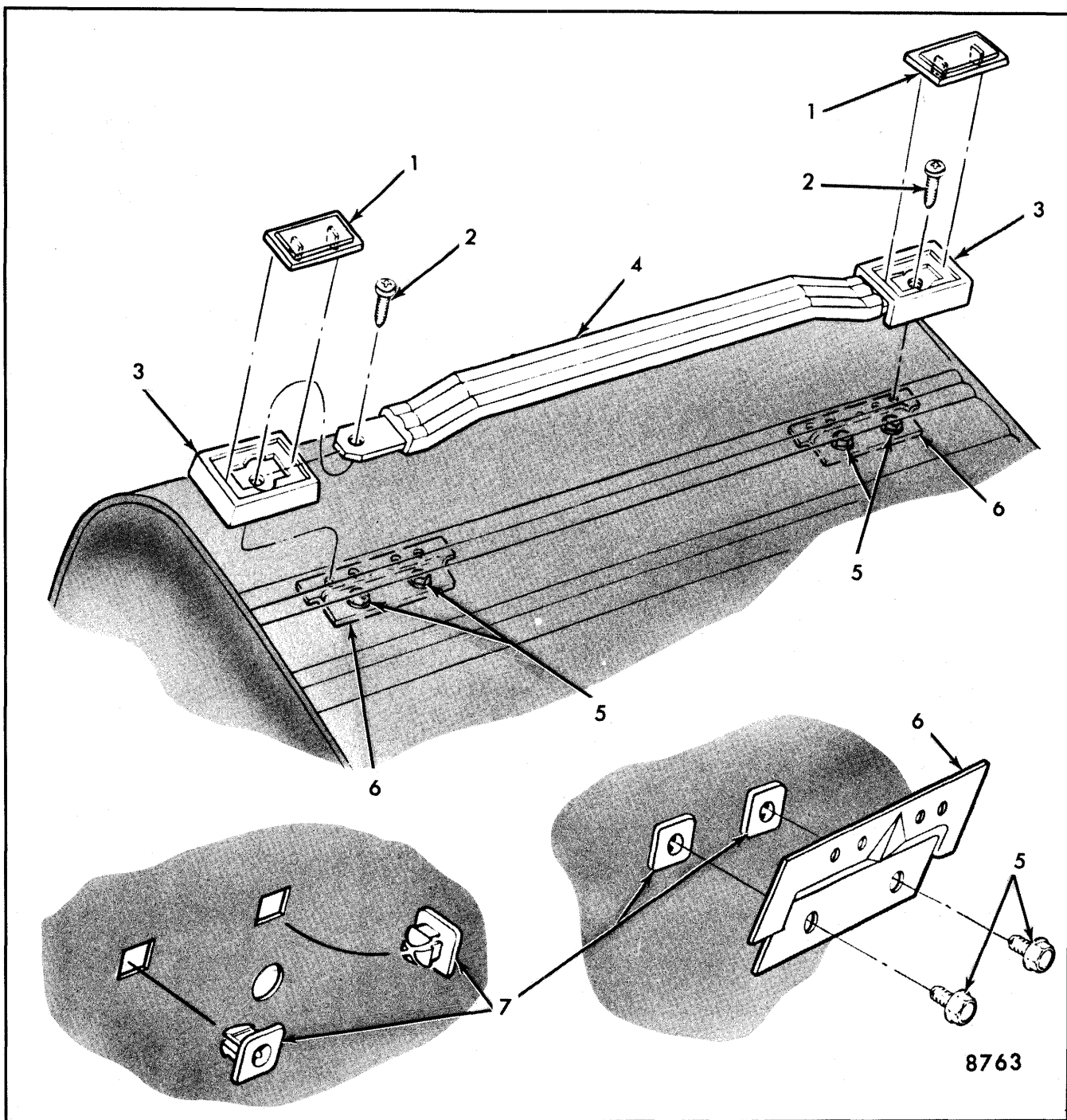


Fig. 9-11-Front Seat Back Assist Strap Installation

- | | |
|--|---|
| 1. Assist Strap Escutcheon Cover (Snap-In) | 5. Assist Strap and Escutcheon Retainer Attaching Bolts |
| 2. Assist Strap Retaining Screw | 6. Assist Strap and Escutcheon Retainer |
| 3. Assist Strap Escutcheon | 7. Assist Strap and Escutcheon Retainer Attaching Nuts |
| 4. Assist Strap | |

using snap ring tool or a suitable hooked end tool. Remove attaching pins and reclining unit.

4. To install reclining unit, reverse removal procedure. To facilitate installation of reclining unit,

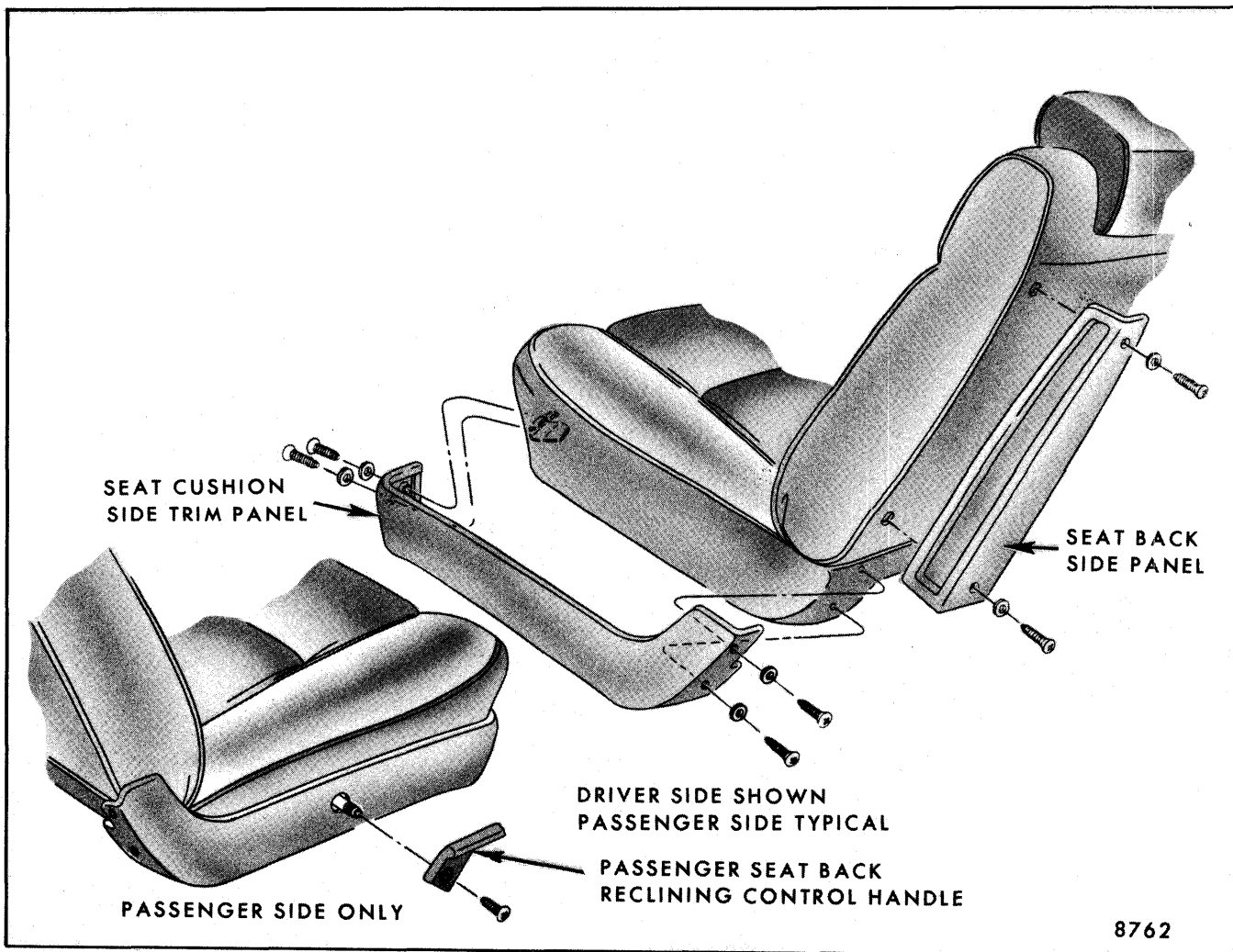


Fig. 9-12-Seat Cushion, Back Panels and Reclining Control Handle

push plunger into cylinder approximately 1/2 inch to shorten unit. This can be accomplished by placing plunger end of unit on floor and pushing down while actuating control lever; then, when plunger has moved into cylinder approximately 1/2 inch, release control lever to lock plunger in position. Check operation of reclining unit to full limits of travel.

stock. The edge of this tool will release the spring lock tab.

FRONT SEAT BACK HEAD RESTRAINT

Description

Head restraints for the seat are single post type, which can be adjusted to two positions (low or high). To remove head restraints it is necessary to follow the procedure described below:

NOTE: A head restraint lock releasing tool, shown in Figure 9-14, can be made from 20 gauge (.035) steel

Removal and Installation - Refer to Fig. 9-14

1. Raise head restraint past full up detent position to anti-removal lock position; then, push head restraint downward approximately 3/8".
2. Insert lock release tool or suitable flat piece of metal 1-9/16 inches wide down front surface of head restraint post approximately 2-1/2 inches; then, lift head restraint out of guide tube.
3. To install head restraint, insert post into guide and push down to full down position. Check that lock spring engages and prevents head restraint from being removed.

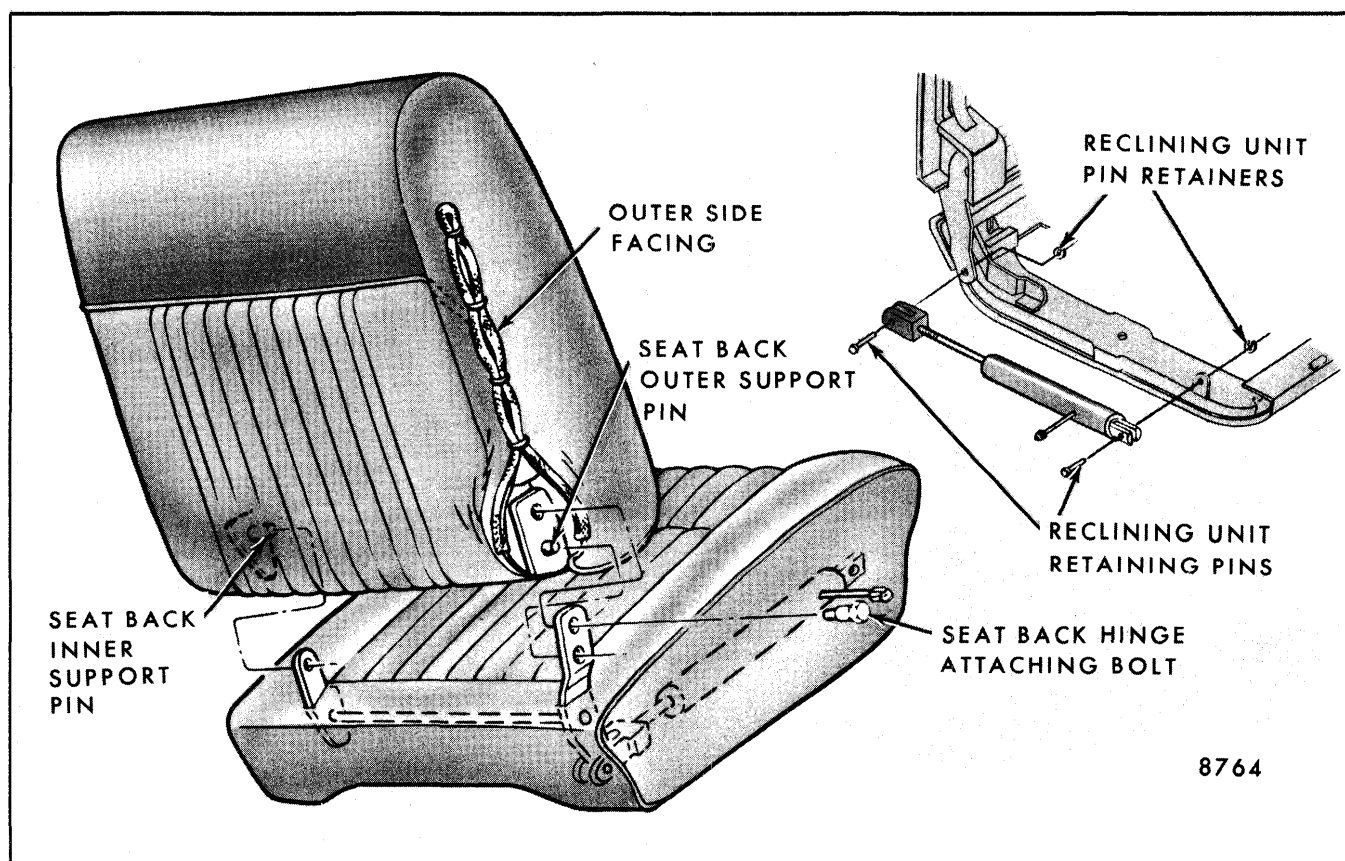


Fig. 9-13-Passenger Seat Reclining Back and Reclining Unit

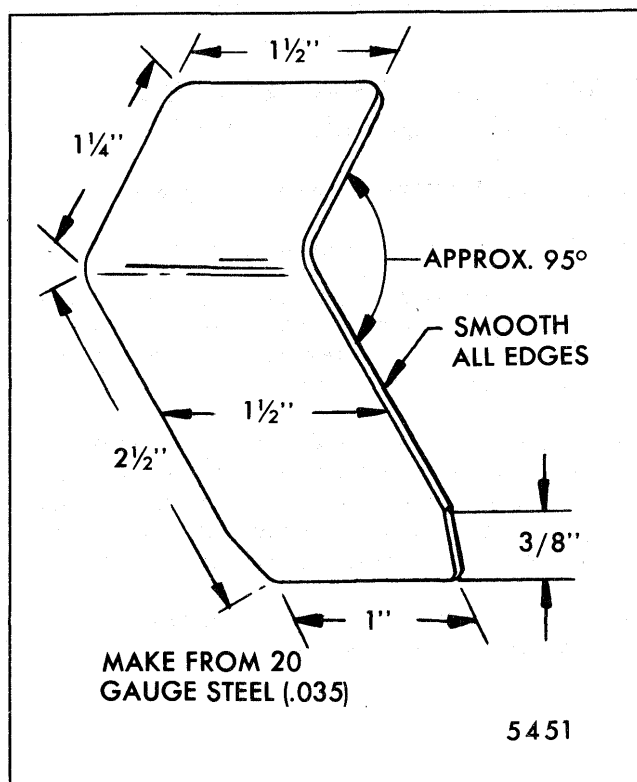


Fig. 9-14-Head Restraint Anti-Removal Lock Releasing Tool

FRONT SEAT BACK HEAD RESTRAINT LOCK AND ESCUTCHEON ASSEMBLY

Removal and Installation - Refer to Fig. 9-15

1. Remove head restraint as previously described.
2. Remove lock and escutcheon assembly attaching screws and remove lock and escutcheon.
3. To install, reverse removal procedure. Check operation of head restraint.

FRONT SEAT BACK HEAD RESTRAINT GUIDE TUBE

The front seat back head restraint guide tube is a plastic tube inserted through slots in a guide tube support which is an integral part of the seat back frame. The guide tube support assembly, which incorporates a riveted-on tension spring, is welded to the seat back frame.

Removal and Installation

1. Remove front seat back and head restraint lock

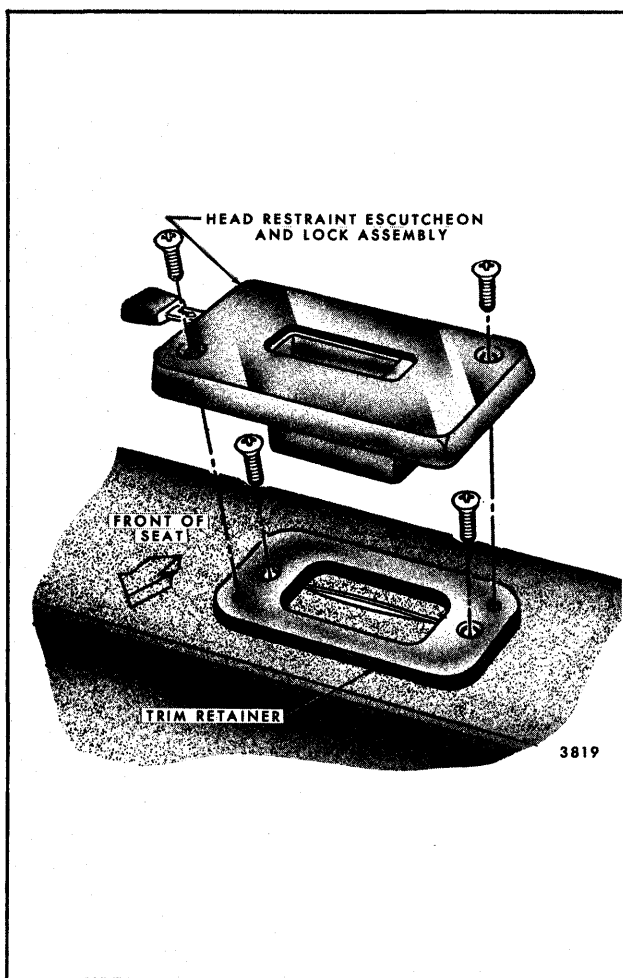


Fig. 9-15-Front Seat Back Head Restraint Retainer, Lock and Escutcheon

and escutcheon assembly as previously described. Remove trim retainer (see Fig. 9-15).

2. Remove seat back assembly as previously described; then, as a bench operation remove hog rings securing trim at bottom of seat back and pull up trim sufficiently to gain access to head restraint support or guide tube.
3. Remove screw securing guide tube and slide guide tube out of support (Fig. 9-16).
4. To install head restraint guide tube, reverse removal procedure.

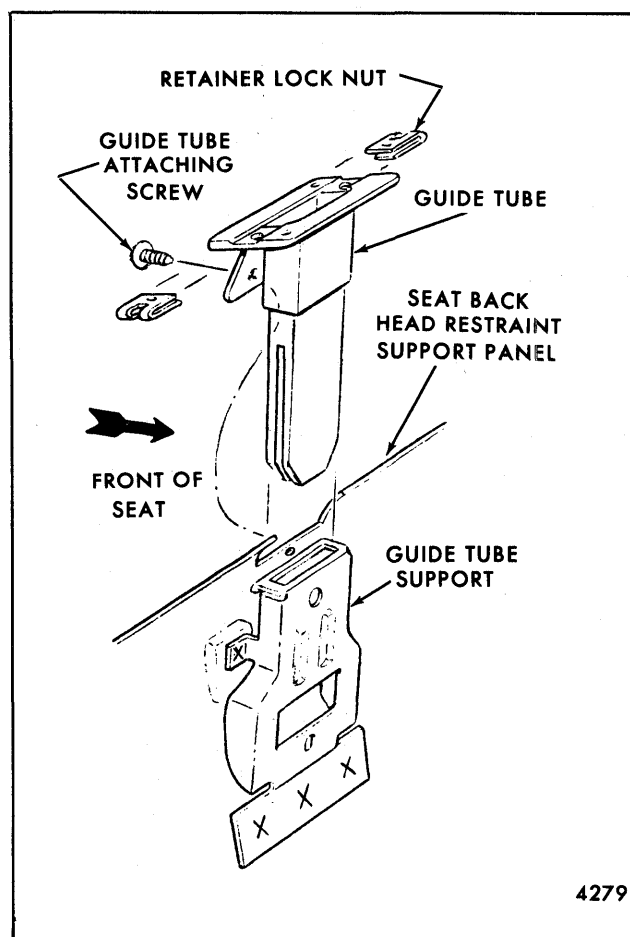


Fig. 9-16-Head Restraint Guide Tube

PASSENGER AND DRIVER SEAT BACK CENTER ARMREST AND SUPPORT

Removal and Installation - Refer to Fig. 9-17

1. Place center armrest in down position.
2. To remove armrest, less support, first disengage finishing covers from pivot support and remove pivot support-to-armrest bolts from both sides of armrest and remove armrest.
3. To remove armrest and support assembly, first detach finishing covers. Remove two (2) pivot support to frame nuts; then, disengage pivot support tab from slot in retaining plate and remove armrest and support assembly from seat.
4. To install front seat center armrest or support, reverse removal procedure.

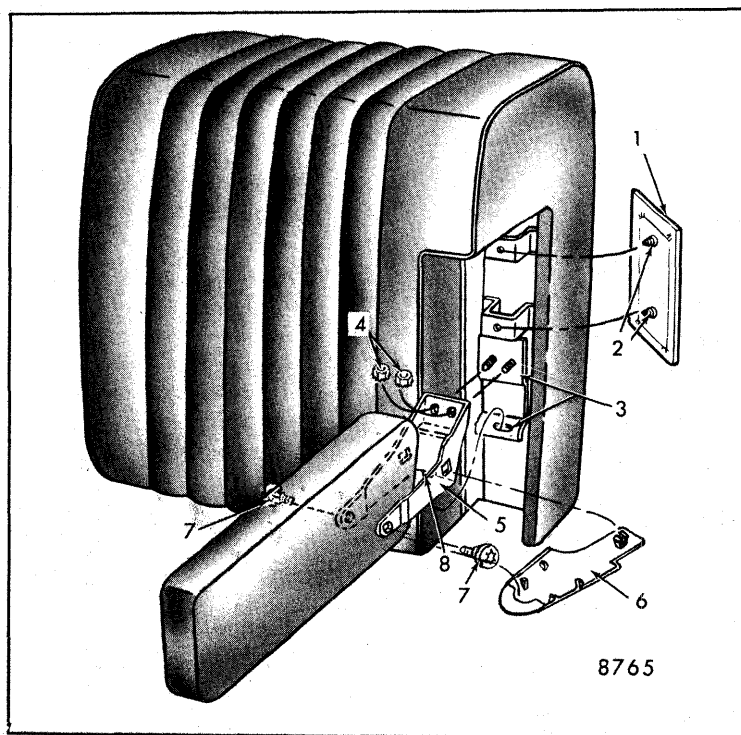


Fig. 9-17-Passenger and Driver Seat Back Center Armrest Installation

- | | |
|---|-------------------------------------|
| 1. Center Armrest Trim Finishing Cover | 5. Center Armrest Pivot Support |
| 2. Trim Finishing Cover Fastener | 6. Armrest Pivot Support Cover |
| 3. Pivot Support Retaining Plate And Slot | 7. Pivot Support-to-Armrest Bolt |
| 4. Pivot Support to Frame Assembly Nut | 8. Center Armrest Pivot Support Tab |

REAR SEATS

REAR SEAT CUSHION ASSEMBLY

Removal - Refer to Fig. 9-18

Push lower forward edge of seat cushion rearward; then, lift upward and pull forward on seat cushion frame to disengage cushion frame wires from retainers on rear seat pan.

NOTE: If difficulty is experienced in disengaging the front edge of the rear seat cushion from retainers on rear seat pan it may be necessary to kneel on the rear floor pan. Grasp lower edge of seat cushion at location of retainer on one side of seat; then, lean forward (towards seat cushion) using leg pressure against hands or arms, exert sufficient rearward pressure to disengage seat from retainers.

Installation - Refer to Fig. 9-18

1. Carefully lift cushion into body using caution not to damage adjacent trim. Position rear edge of cushion at rear seat back assembly.
2. Lay seat belts on top of cushion; then, push cushion against seat back.
3. Align wire protrusions on front of seat cushion frame with retainers on floor pan. Push seat cushion assembly rearward until protrusions engage in retainers; then, press down and pull cushion forward to fully engage in retainers.

NOTE: If difficulty is experienced in engaging front of cushion in retainers, use the same

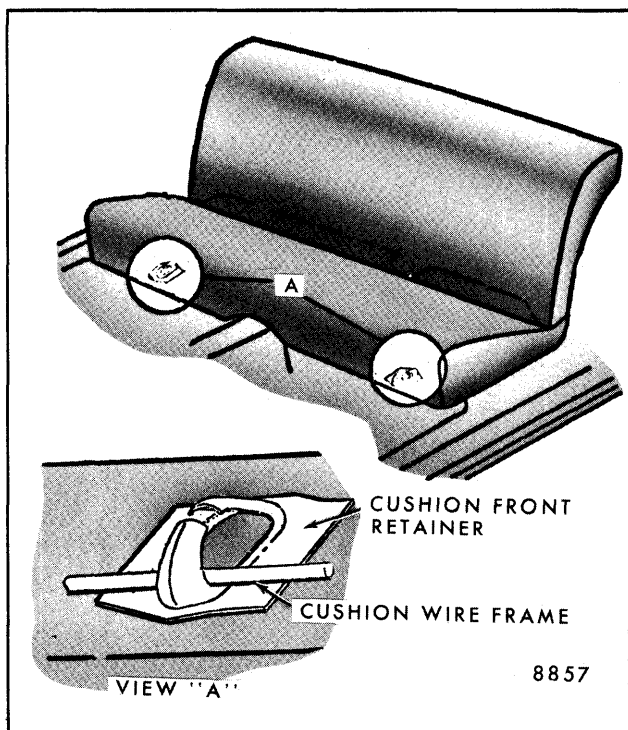


Fig. 9-18-Rear Seat Cushion Installation

method described under step 1 of "Removal", to engage cushion in retainers.

If seat cushion frame protrusions are not properly centered in relation to retainers on seat pan, proper engagement and placement of cushion may be extremely difficult.

REAR SEAT BACK ASSEMBLY

Removal and Installation - Refer to Fig. 9-19

1. Remove rear seat cushion assembly as previously described.
2. At lower outboard corners of seat back bend tabs forward that secure seat back.
3. At bottom of seat back, remove two screws securing lower center portion of seat back frame.
4. Pull lower portion of seat back forward to disengage from corner tabs; then, lift seat back upward until upper portion of seat back is disengaged from hanger brackets on seat back panel supports.
5. Remove seat back and armrest assembly from body.
6. To install, reverse removal procedure, making

certain that all attaching body tabs and hangers have industrial body tape applied to them to act as an anti-squeak.

REAR SEAT BACK CENTER ARMREST, LINKAGE AND CURTAIN

Removal and Installation - Refer to Fig. 9-20

1. Remove rear seat cushion and back assemblies.
2. Lower rear seat back center armrest, carefully remove hog rings from armrest curtain and fold trim flap forward.
3. Remove four (4) screws securing armrest linkage to back frame assembly; then, remove armrest from seat back.
4. Remove four (4) screws securing armrest linkage to armrest assembly and remove link assembly from armrest assembly.
5. To install, reverse removal procedure.

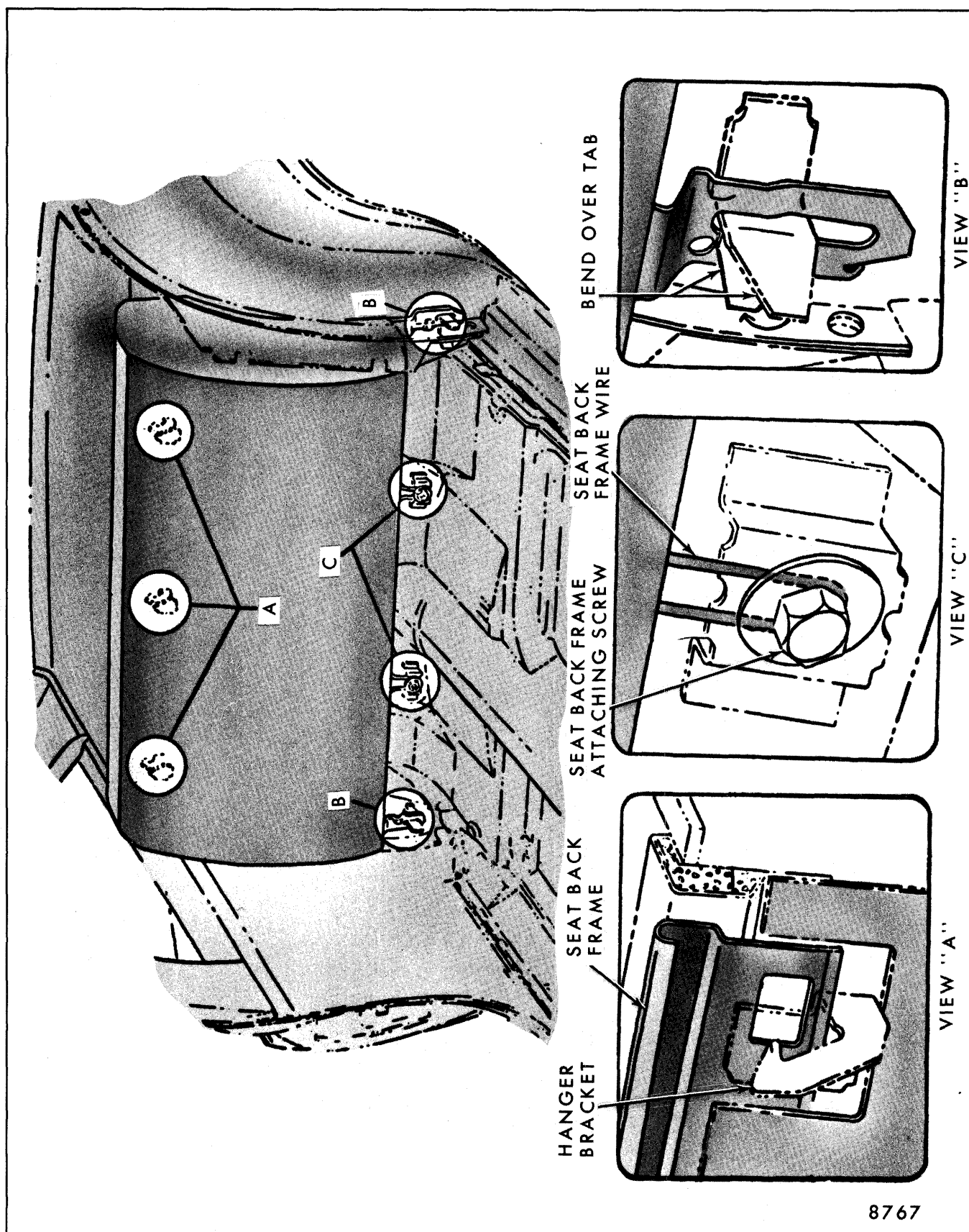
REAR SPEAKERS

Removal and Installation - Refer to Figs. 9-21, 9-22 and 9-23

1. Through rear compartment (trunk) carefully disengage speaker baffle (cover) push on nut(s) (one on monaural speaker, three on stereo speakers - See Figs. 9-21 and 9-22); then, carefully remove speaker cover.
2. Disconnect speaker wire from body harness.
3. On side of speaker towards center of car, disengage speaker retainer spring hook from slot in rear seat-to-back window metal panel. Swing in-board side of speaker and retainer assembly down sufficiently to disengage two tabs on outboard side from slots in metal panel; then, remove speaker and retainer assembly.

NOTE: If replacing speaker, place speaker and retainer assembly on a bench, speaker face down; then, carefully pull retainer straight up from speaker and speaker stud on magnet.

4. To install, reverse removal procedure. When installing speaker retainer to speaker, make certain square hole in speaker retainer seats over square collar at base of stud on speaker magnet; then, bend tabs on retainer to loosely hold speaker in position.



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Fig. 9-19-Rear Seat Back Installation

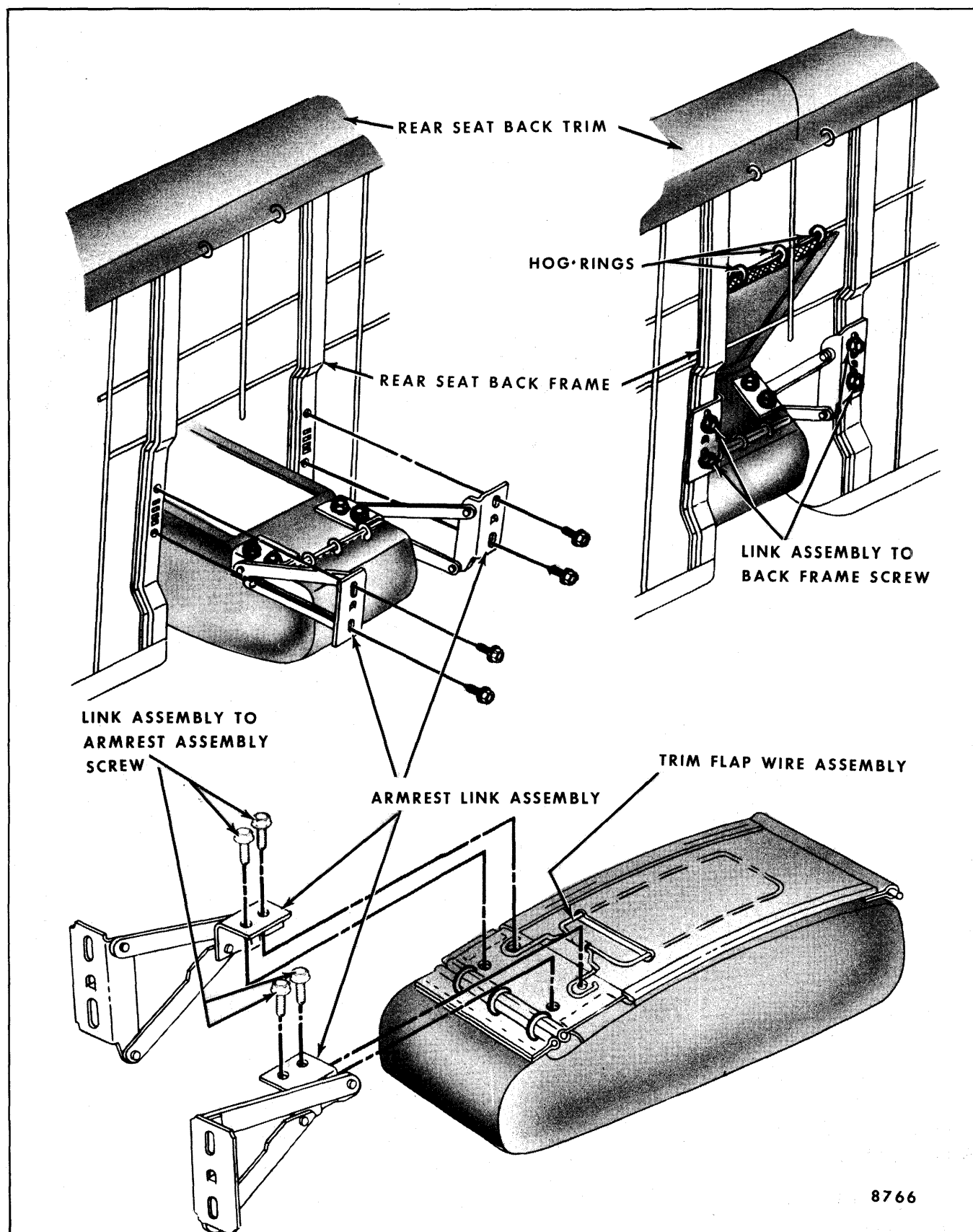


Fig. 9-20-Rear Seat Back Center Armrest Installation

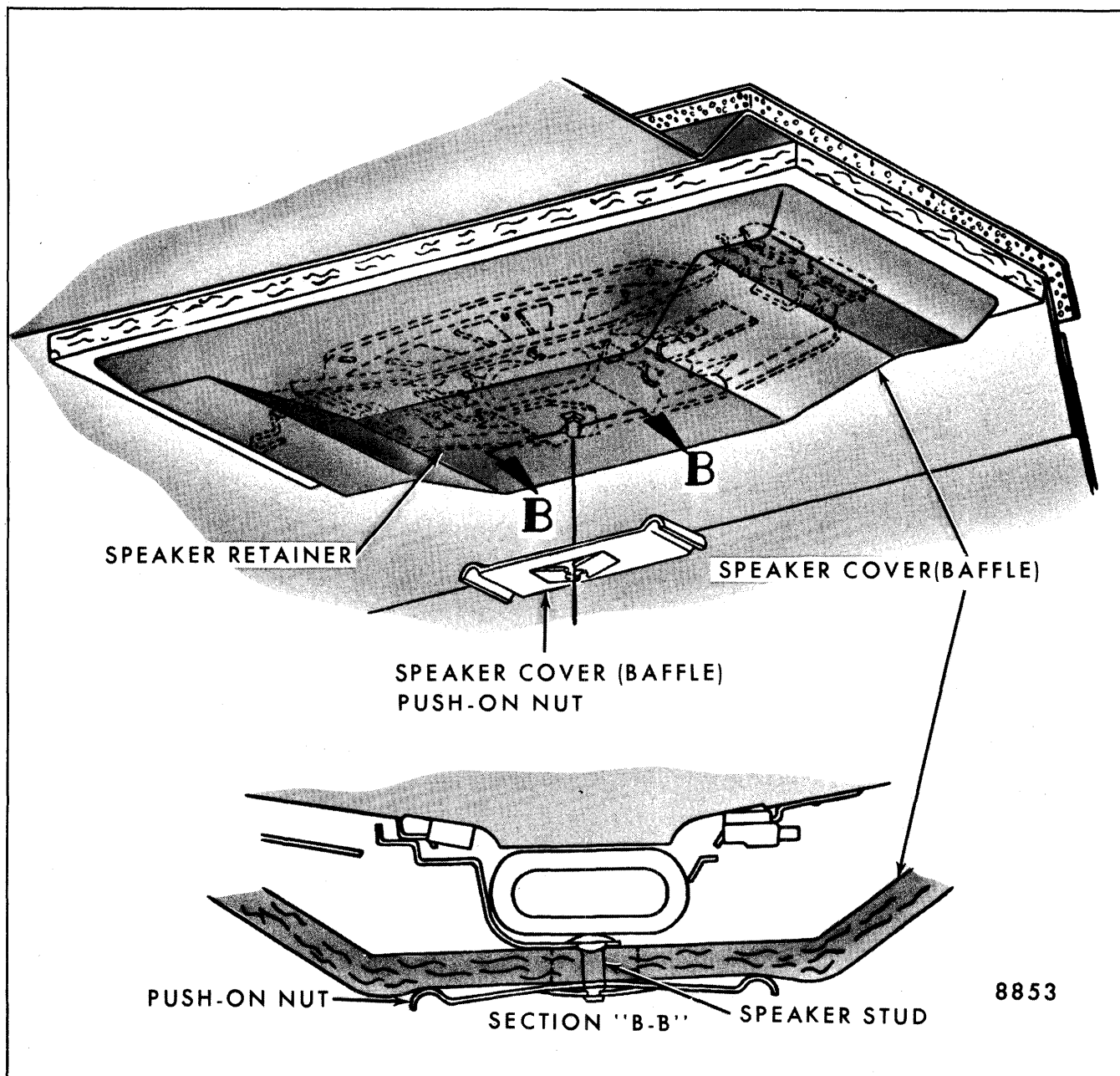


Fig. 9-21-Rear Speaker (Monaural) Cover (Baffle) Installation

BACK WINDOW LOWER GARNISH MOLDING

Refer to "Back Window - Removal and Installation" in Stationary Glass Section.

REAR SEAT-TO-BACK WINDOW PANEL TRIM ASSEMBLY

Removal and Installation - Refer to Fig. 9-24

1. Remove rear seat cushion and back assemblies as previously described under "REAR SEAT CUSHION" and "REAR SEAT BACK".

2. Carefully detach cemented front (valance) edge of trim from body panel.
3. Move trim panel forward to disengage rear edge of foundation from under back window lower and side garnish moldings and remove trim panel.

NOTE: It may be necessary to carefully bend center of panel upward to enable outer ends of panel to be disengaged from under back window side garnish moldings.

4. To install rear seat-to-back window panel trim assembly, reverse removal procedure.

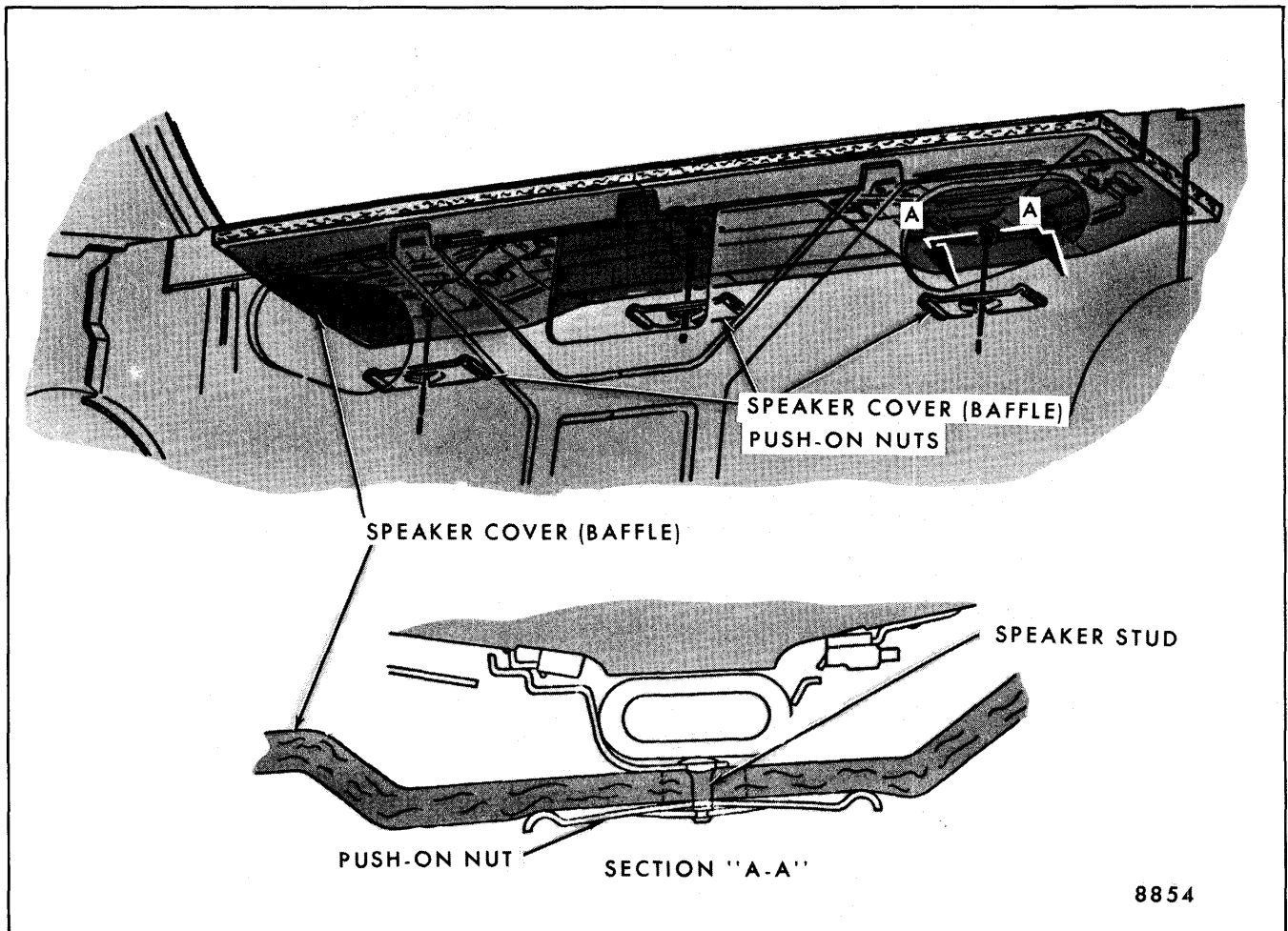


Fig. 9-22-Rear Speaker (Stereo) Cover (Baffle) Installation

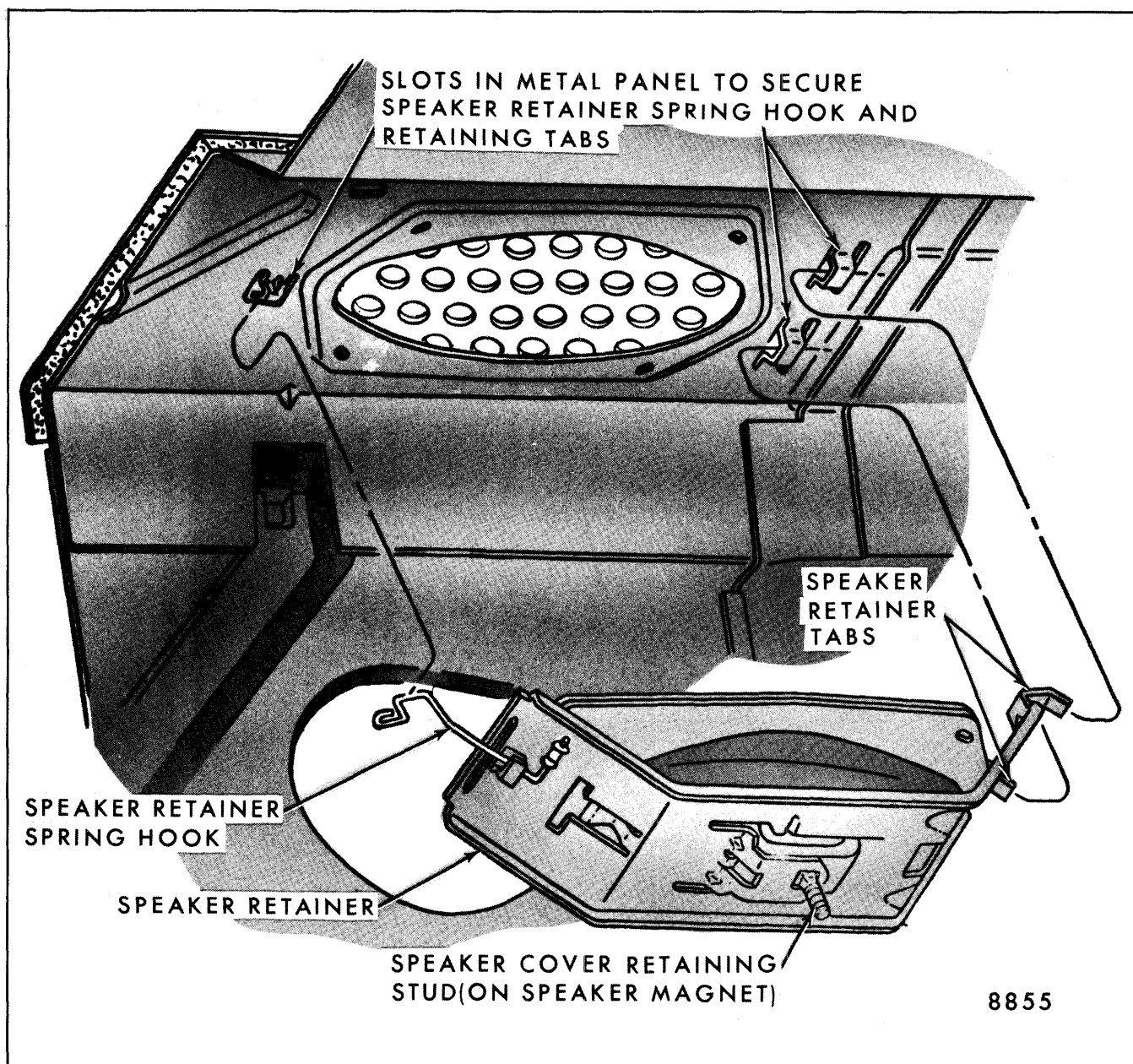


Fig. 9-23-Rear Speaker and Retainer Assembly Installation

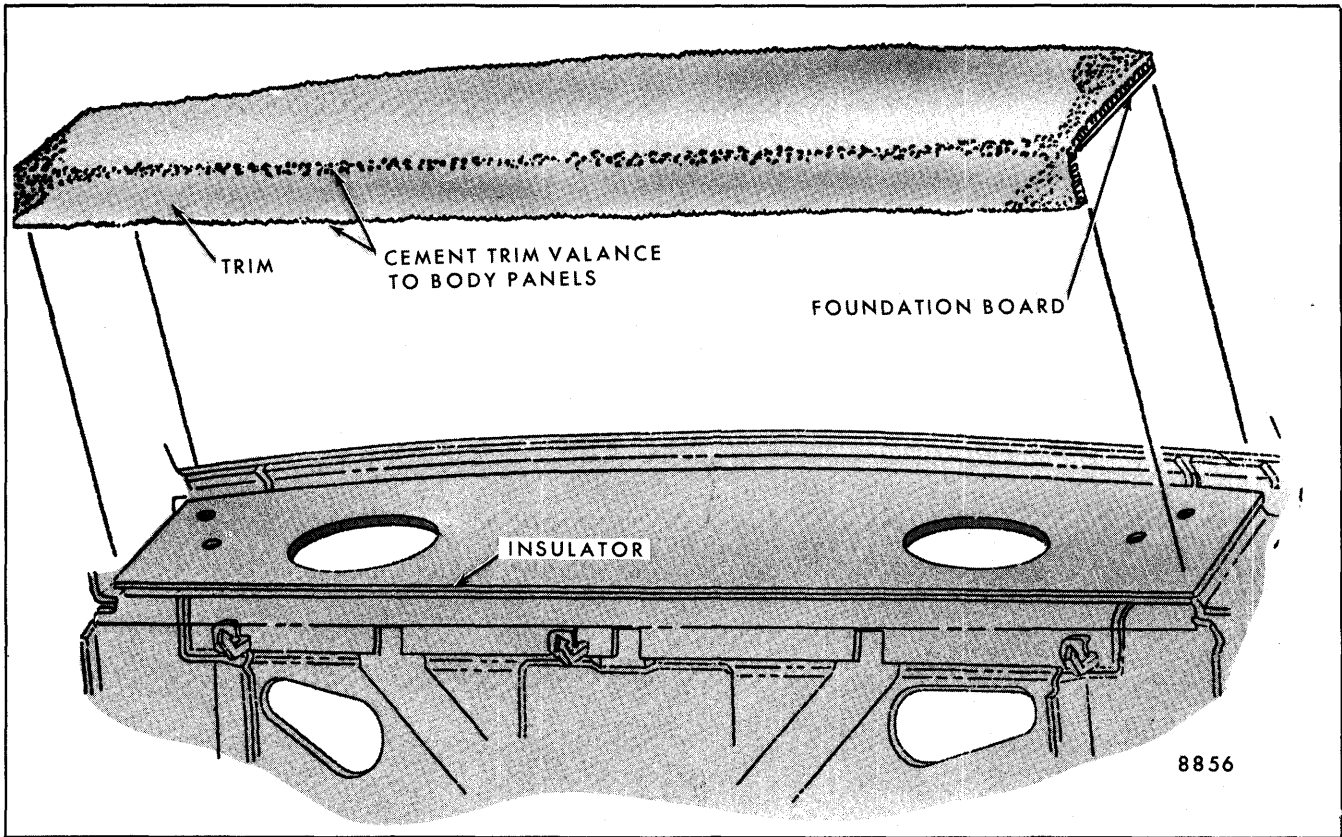


Fig. 9-24-Rear Seat-to-Back Window Trim Panel

LAP AND SINGLE LOOP BELTS - General Information

The front seat single loop belts incorporate a four (4) to eight (8) second "Fasten Seat Belt" reminder lamp and sound signal designed to remind the driver if the single loop lap and shoulder belt is not fastened when the ignition is turned to the "ON" position. The engine will start without seat belts buckled; however, a sound signal and reminder light will be activated for four (4) to eight (8) seconds and then turn off automatically. When the driver's seat belt is buckled, the buzzer will not operate; however, the "Fasten Seat Belt" reminder lamp will stay on for a four (4) to eight (8) second period.

The single loop belt system consists of a single continuous length of webbing. The webbing is routed from the anchor (at the rocker panel), through a "Self-locking Latch Plate" (at the buckle), around the guide assembly (at the top of the center pillar) and into a single retractor in the lower area of the center pillar. The emergency locking feature of the retractor remains unlocked to allow free movement of the occupant's upper body while the vehicle is being operated. When the vehicle decelerates or changes direction abruptly, the single loop belt(s) is locked in position by a ball that causes a locking bar to engage a cog of the retractor mechanism.

The retractor incorporates a new comfort lock feature that allows the occupant to adjust the shoulder belt for proper fit and comfort. When engaged, the comfort lock prevents retraction of the webbing to eliminate occupant discomfort due to webbing load on the shoulder. The occupant can readjust the comfort lock during vehicle operation as described in the operational requirements below. Whenever the occupant's door is opened the comfort lock is automatically unlocked so the webbing can fully retract to the stowed position. This is controlled by the comfort lock plunger located at the lower front side of the center pillar.

OPERATIONAL CHECKS AND REQUIREMENTS

The comfort lock feature must function as follows:

1. With door closed, extend the webbing from the retractor to the working range of the belt.
2. Let the belt retract a minimum of 6 inches.
3. Extract the belt for 1/2 inch and release belt. The comfort lock must engage and prevent retraction.
4. Extract belt 4 inches and release. The belt must

return to the comfort lock position previously set. Full retraction is a failure of the system.

5. Extract belt 6 inches and release. The belt must fully retract without locking.

SERVICING LAP AND SHOULDER BELTS

Before servicing or replacing lap and single loop belt(s), refer to the following precautionary items:

1. Single loop belt(s) will be serviced as follows:
 - a. Retractor portion of front seat single loop belt for passenger and driver.
 - b. Buckle portion of front seat belt for passenger and driver.
 - c. All belts other than those mentioned in above steps a and b will be serviced in complete sets.
2. Keep sharp edges and damaging objects away from belts.
3. Avoid bending or damaging any portion of the belt buckle or latch plate.
4. Do not bleach or dye belt or single loop webbing (clean with a mild soap solution and water).
5. When installing seat belt anchor bolt(s), start bolt by hand to assure that bolt is threaded properly.
6. Do not attempt repairs on retractor mechanisms or retractor covers. Replace defective assemblies with new service replacement parts.

CAUTION: Front seat single loop belt to rocker panel, floor pan, center pillar and rear seat lap belt to floor pan fasteners are important attaching parts in that they could affect the performance of vital components and systems, and/or could result in major repair expense. They must be replaced with one of the same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of these parts.

7. Do not attempt to remove seat belt retractor

cover. The cover and the long rivet securing the cover to the retractor are not available as service replacement parts.

8. Tighten all seat belt anchor bolts to specified torque - 45 foot pounds.

NOTE: Specified 1/2 inch - 13 UNC thread forming bolts must be used for all front seat, rear seat belt and retractor anchorages.

LAP BELTS AND SINGLE LOOP BELTS

Removal and Installation - Refer to Fig. 9-27, 9-28 and 9-25

CAUTION: *Front seat single loop belt to rocker panel, floor pan, center pillar and rear seat lap belt to floor pan fasteners are important attaching parts in that they could affect the performance of vital components and systems, and/or could result in major repair expense. They must be replaced with one of the same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of these parts.*

Check position of factory installed lap belt and single loop belt anchors and reinstall anchor plates in same position as shown in illustrations.

To remove front seat belt retractor(s) follow procedure as outlined below.

1. Remove front and rear door sill plates.
2. Disengage front seat belt outer anchor plate cover from floor pan and carpet.
3. Fold carpet inboard at center pillar to expose lower seat belt anchor bolts and remove bolts with tool J-23457 or equivalent.
4. Remove lower seat belt anchor plate from front seat belt outer anchor plate cover.

5. Remove two (2) retaining screws from lower portion of foundation.
6. Remove single loop center pillar retractor foundation by inserting thin bladed removal tool J-24595 or BT-7323 (or equivalent) between center pillar foundation and trim finishing panel at each clip location to disengage clip(s) from trim finishing panel.
7. Remove seat belt(s) from retractor foundation.
8. Remove retractor assembly and guide assembly attaching bolts with removal tool J-23457 or equivalent.

CAUTION: *Care must be taken when removing and/or installing retractor assembly not to damage the comfort mechanism release which protrudes through the center pillar.*

9. To install, reverse the removal procedure.

CAUTION: *Seat belt webbing must be installed behind rubber band retainer before installation of foundation assembly to prevent damage to seat belt webbing.*

To remove front seat buckle assemblies, follow procedure as outlined below.

1. Remove front seat assemblies as outlined under front seat assembly removal procedure.
2. Fold carpet rearward to expose seat belt anchor plate and buckle assembly attaching bolts.
3. Remove two (2) seat belt anchor plate and buckle assembly attaching bolts from floor pan with removal tool J-23457 or equivalent.
4. Disconnect driver's seat buckle switch connector and remove seat belt anchor plate and buckle assemblies from carpet.

CAUTION: *When removing buckle assemblies from carpet, care must be taken not to damage carpet.*

5. To install, reverse the removal procedure.

When installing plate and buckle assemblies, tighten anchor bolts to 45 foot pounds.

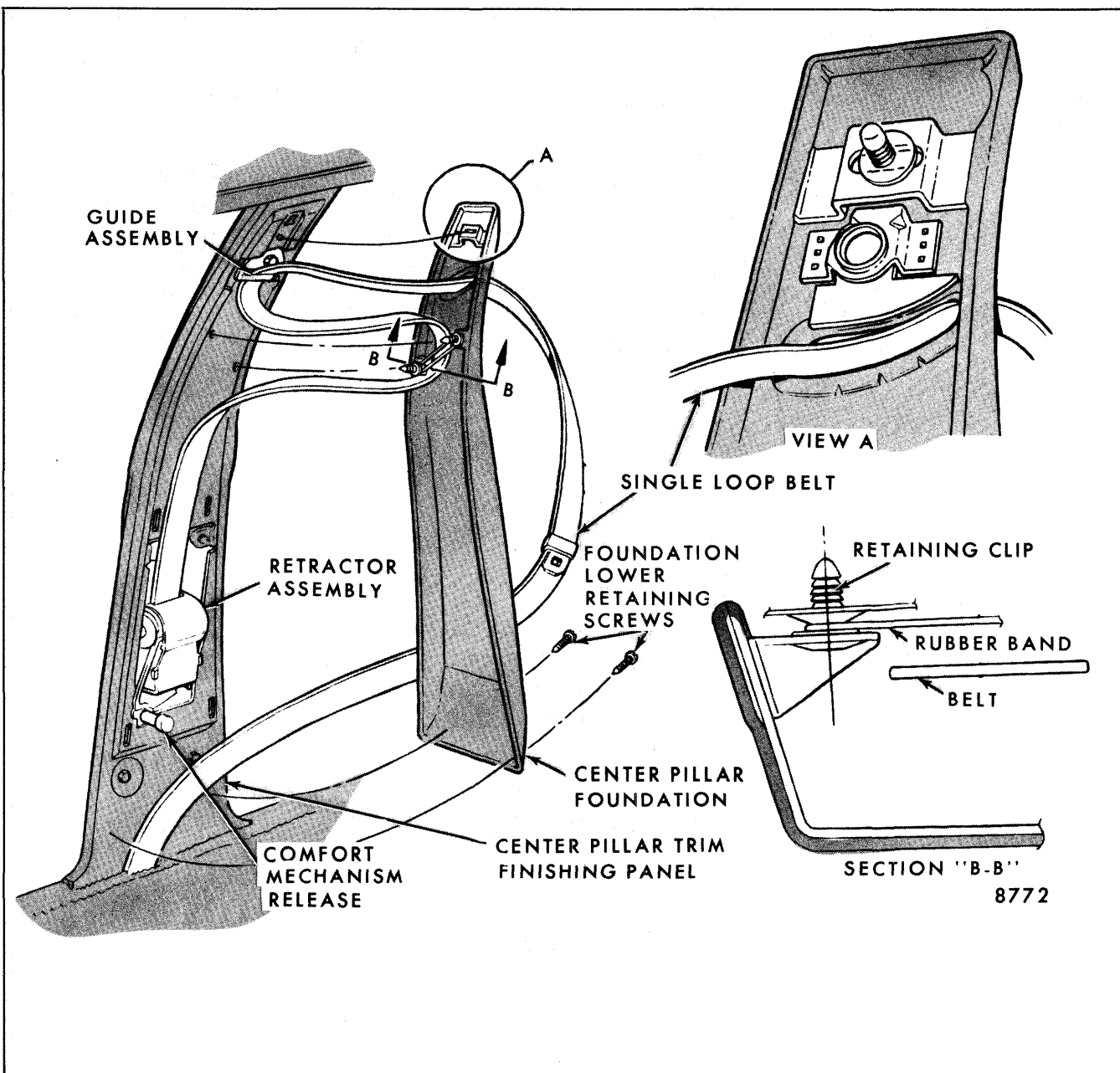
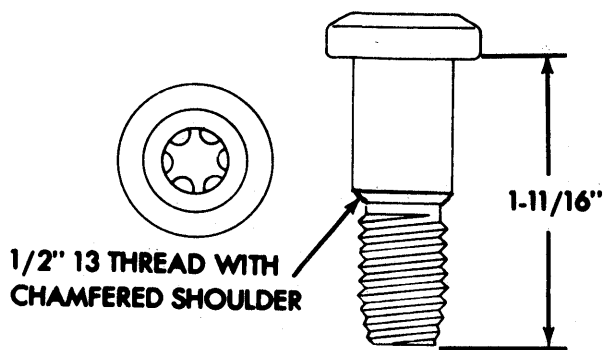
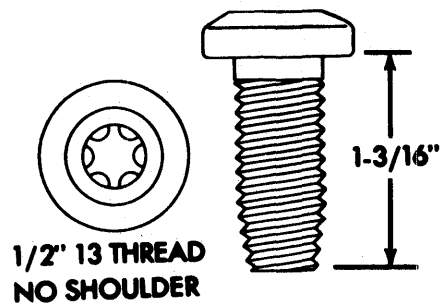


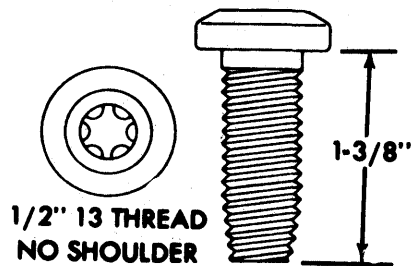
Fig. 9-25-Single Loop Retractor Foundation



TYPE 1



TYPE 2



TYPE 3

CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION. CARE MUST BE EXERCISED WHEN MAKING REPLACEMENT THAT ALL BELT ANCHOR PLATES INTER-LOCK AS SHOWN. TIGHTEN ALL ANCHOR BOLTS TO 20 TO 45 FT. LBS. TORQUE.

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Fig. 9-26-Front and Rear Seat Lap Belt, Buckle, and Retractor Anchor Bolts

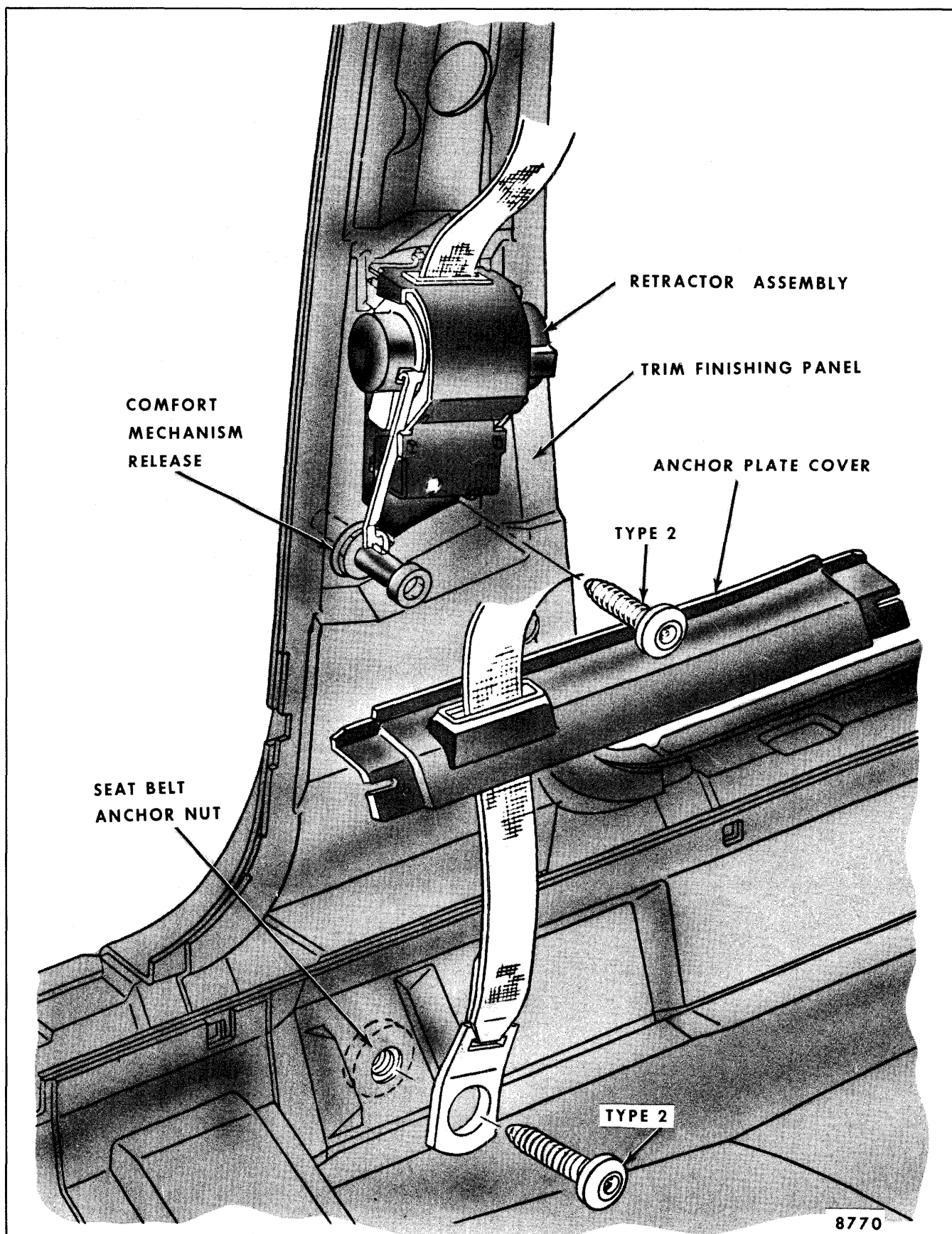


Fig. 9-27-Front Seat Belt Retractor and Lower Loop Retention

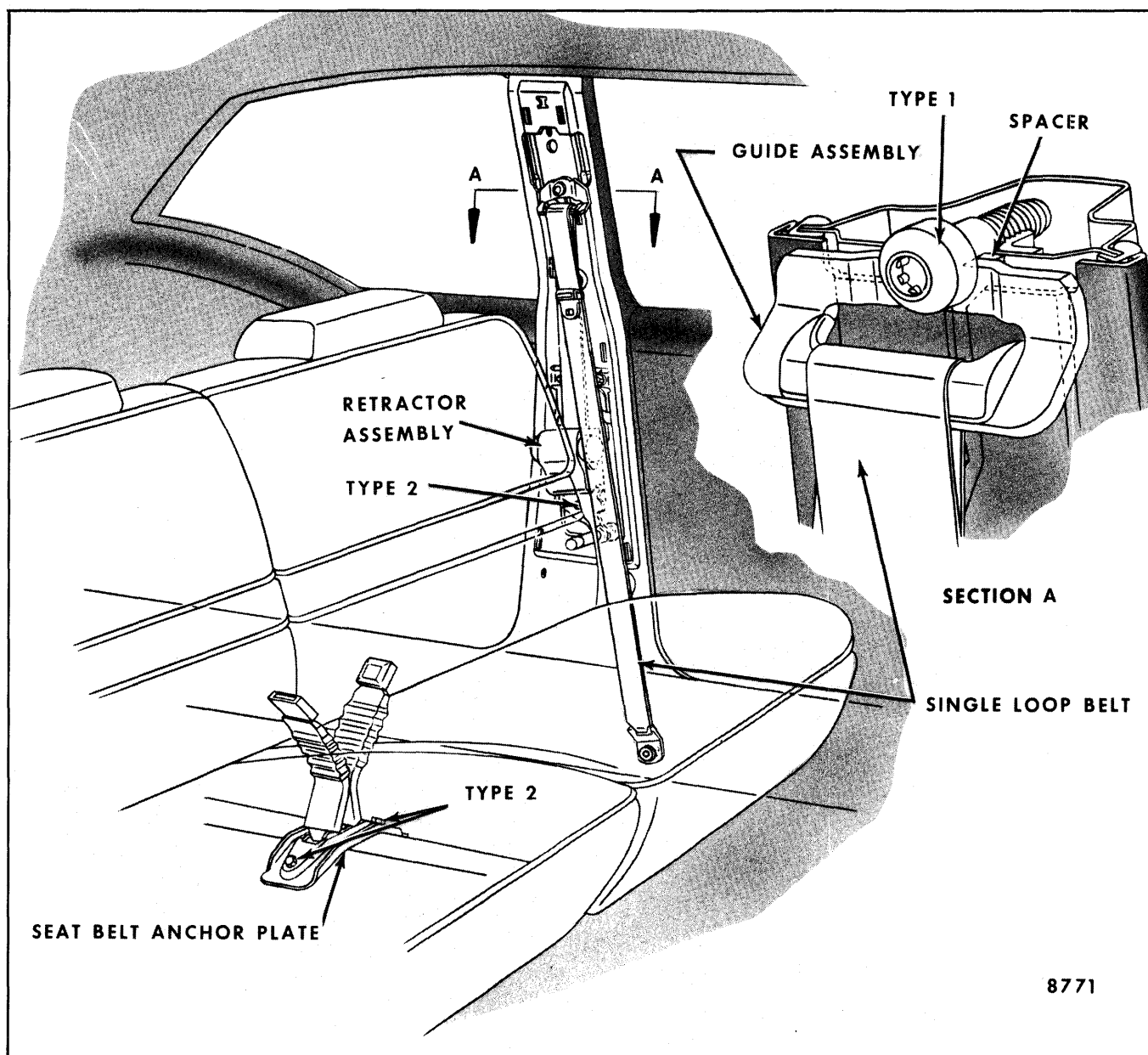


Fig. 9-28-Front Seat Belt, Guide and Buckle Assembly Installation

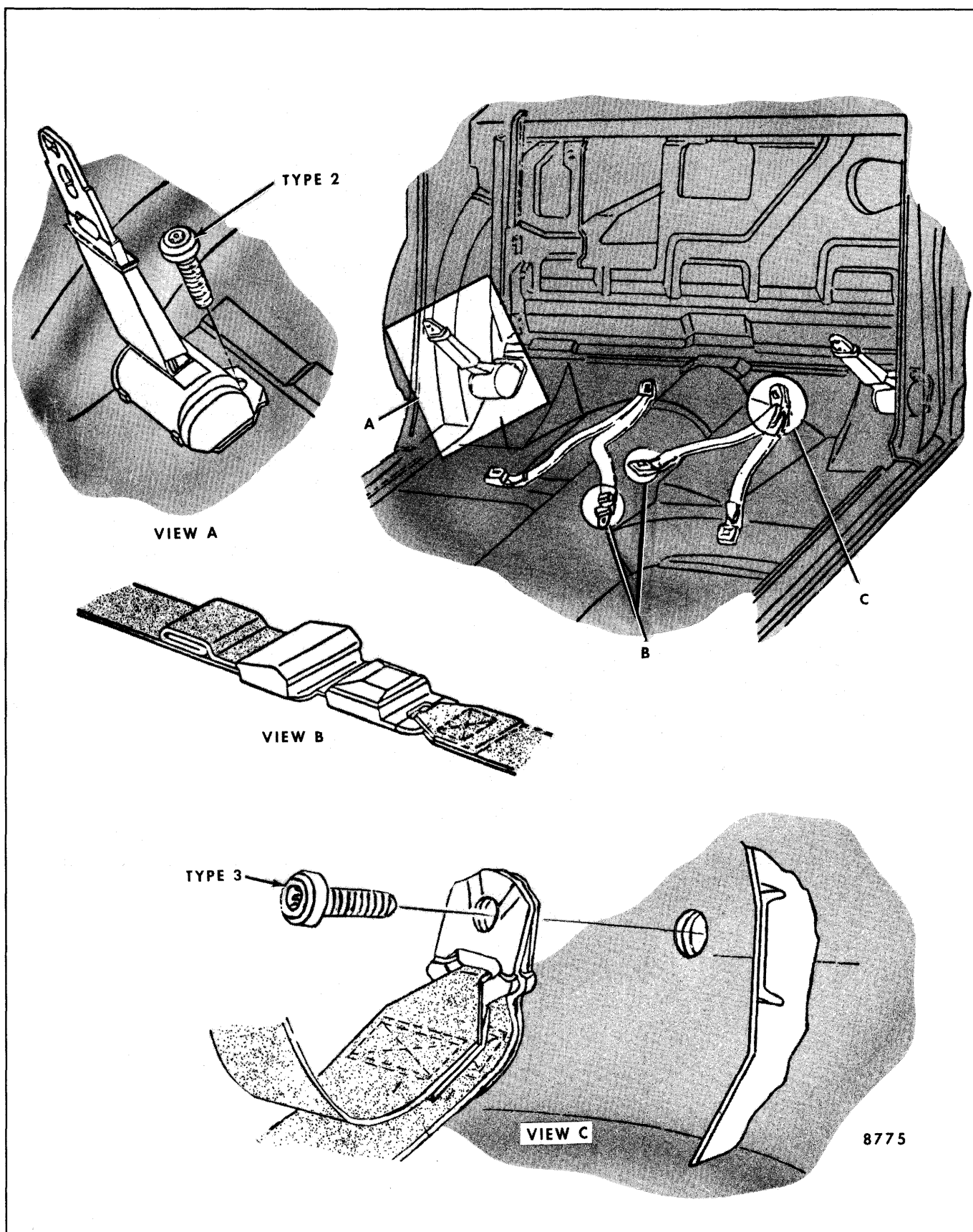


Fig. 9-29-Rear Seat Lap Belt and Retractors

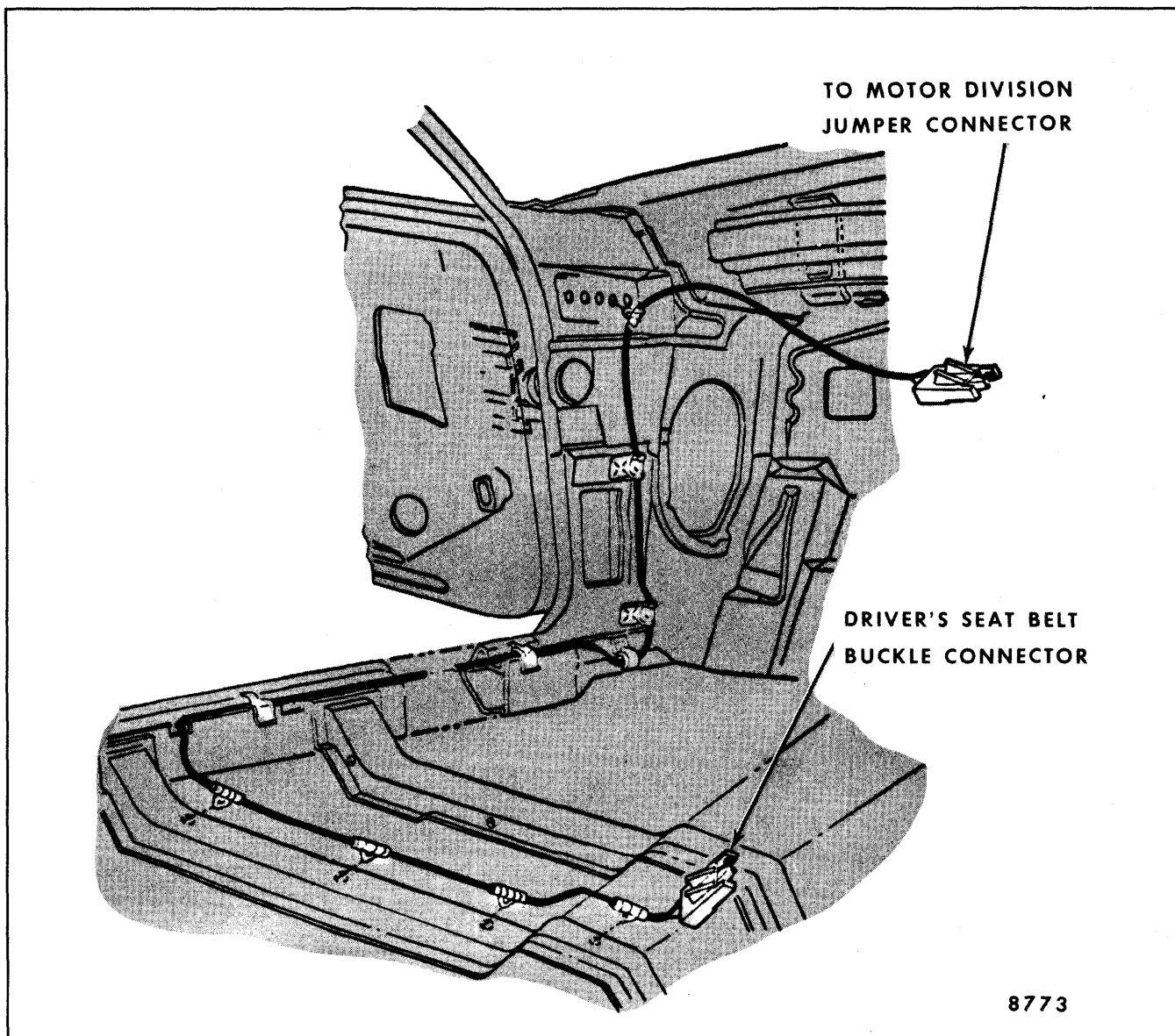


Fig. 9-30-Driver's Seat Belt Buckle Harness Routing

FRONT SEAT BELT WARNING SYSTEM

DESCRIPTION

The new 4-8 second non-sequential warning system incorporates a "fasten seat belt" warning light and driver's activated buzzer designed to remind the driver and passenger(s) to fasten seat belts.

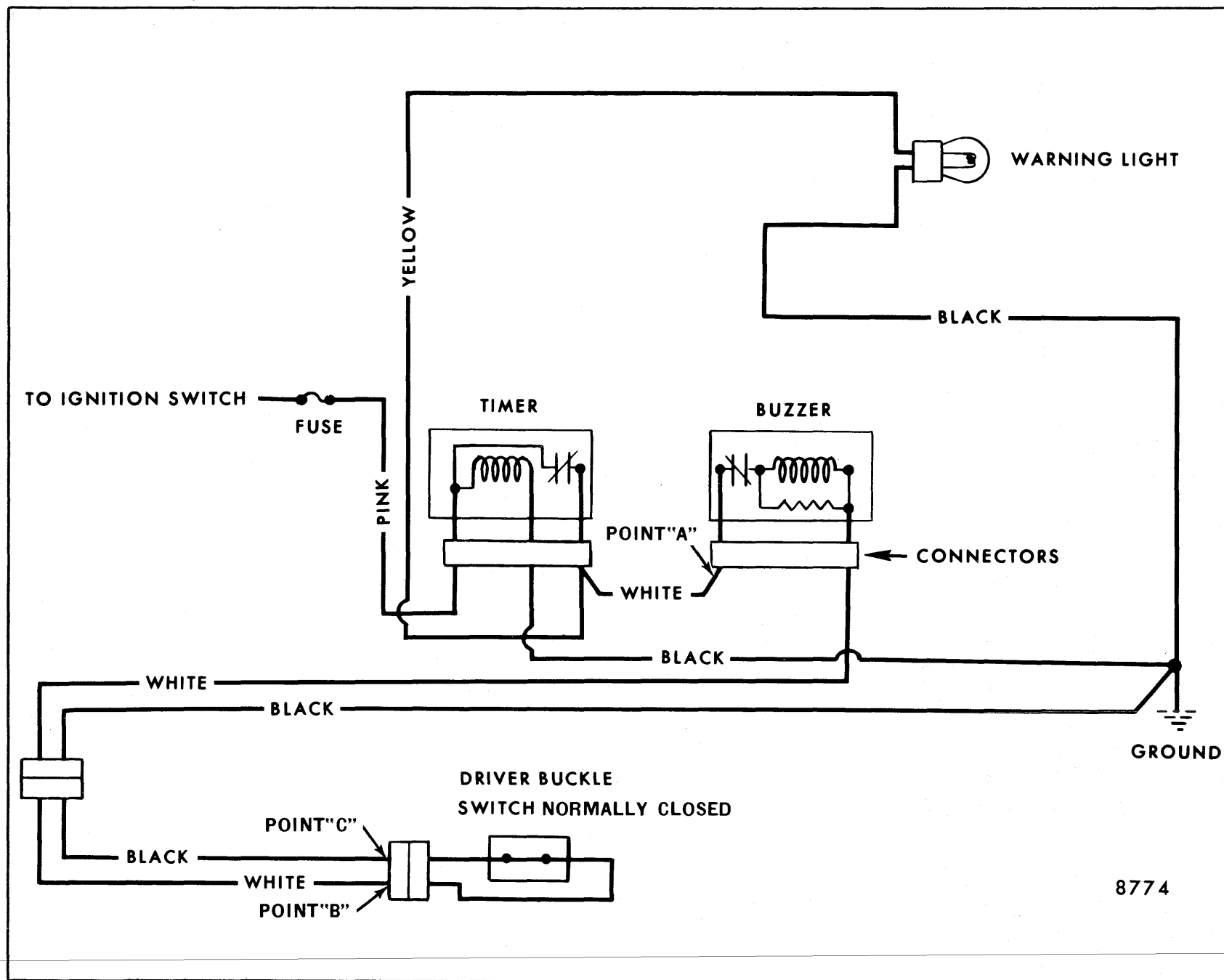
The warning light located in the instrument panel will illuminate every time the ignition switch is turned on whether or not the driver's seat belt is buckled, but will automatically go off after 4-8 seconds. The buzzer will also be controlled by the 4-8

second timer, but will operate only if the driver has not buckled up prior to turning on the ignition. If no attempt is made to buckle-up after turning on the ignition, the buzzer will also shut-off automatically after 4-8 seconds.

The major body components consist of the seat belt body harness and driver's seat belt buckle switch assembly.

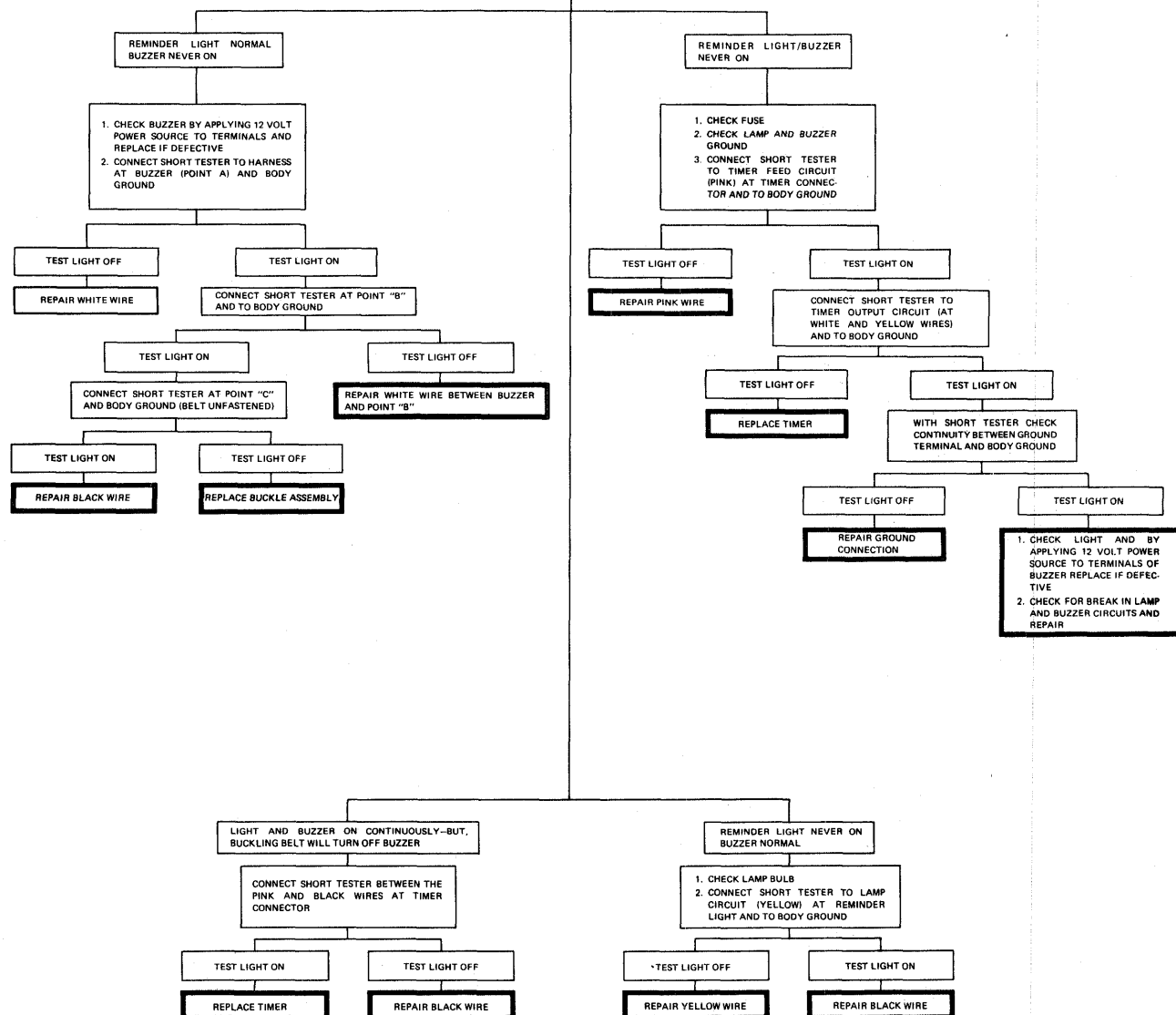
To diagnose a system failure refer to the front seat belt reminder light/buzzer diagnosis chart and seat belt body harness schematic (Figs. 9-32 and 9-31).

Fig. 9-31-Seat Belt Body Harness Schematic



SEAT BELT REMINDER LIGHT/BUZZER DIAGNOSIS

NOTE: WHEN DIAGNOSING A WARNING SYSTEM FAILURE AND THE SYSTEM AUTOMATICALLY SHUTS OFF BECAUSE OF THE 48 SECOND TIMER, A MINIMUM OF 3 MINUTES MUST BE ALLOWED BETWEEN THE DIAGNOSTIC STEPS TO ALLOW THE TIMER TO RESET (KEY IN OFF POSITION DURING THIS PERIOD).



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Fig. 9-32-Front Seat Belt Reminder Light/Buzzer Diagnosis Chart

SECTION 10

ELECTRICAL

INDEX

SUBJECT	PAGE	SUBJECT	PAGE
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General Checking and Body Wiring Repair Procedures	10-1	Electric Door Lock	10-23
Power Windows	10-7	Theft Deterrent System	10-26
Power Seats.....	10-12	Electric Back Window Grid Defogger	10-29

INTRODUCTION

All body wiring harnesses except the front body harness utilize copper wiring. Front body harnesses are constructed of aluminum wire. For specific repair procedures, refer to General Checking and Body Wiring Repair Procedures.

The Wire Identification Chart (Fig. 10-2) is applicable for all wiring diagrams unless otherwise specified. Circuit wiring for power equipment is protected by a fuse panel mounted "plug-in" type protective circuit breaker.

The front body harness (Fig. 10-3) is routed from beneath the instrument panel and then rearward on the floor pan, adjacent to the rocker panel, to the top of the left wheelhouse where it connects to the rear body harness (Fig. 10-4).

The front body harness incorporates a "harmonica" type connector at the front and a "block" type con-

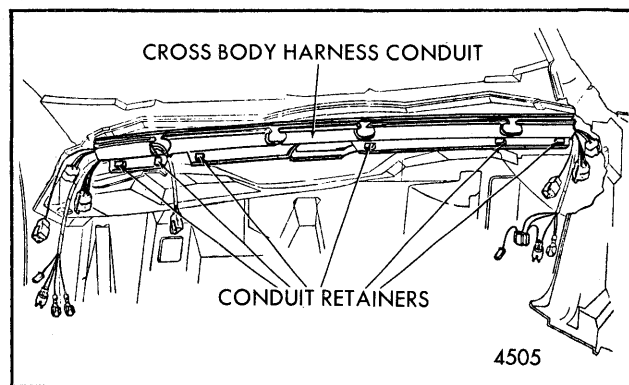


Fig. 10-1-Cross Body Harness Conduit

necter at the rear. All wires crossing the body, beneath the instrument panel, are enclosed in a one-piece plastic conduit which is secured to the center duct panel with clips (Fig. 10-1).

GENERAL CHECKING AND BODY WIRING REPAIR PROCEDURES

INTRODUCTION

Generally most common electrical failures are "open" or "short" circuits. An "open" circuit is one in which the circuit cannot be completed due to a broken wire, poor terminal contact or improper ground.

A "short" circuit consists of a feed circuit that has been completed to ground (shorted) before it reaches the intended operating unit or a ground circuit that is grounding prematurely. A short in a feed circuit will usually create an overload and activate the circuit breaker or "blow" the fuse. A short in a ground circuit will cause continuous operation of the operating unit.

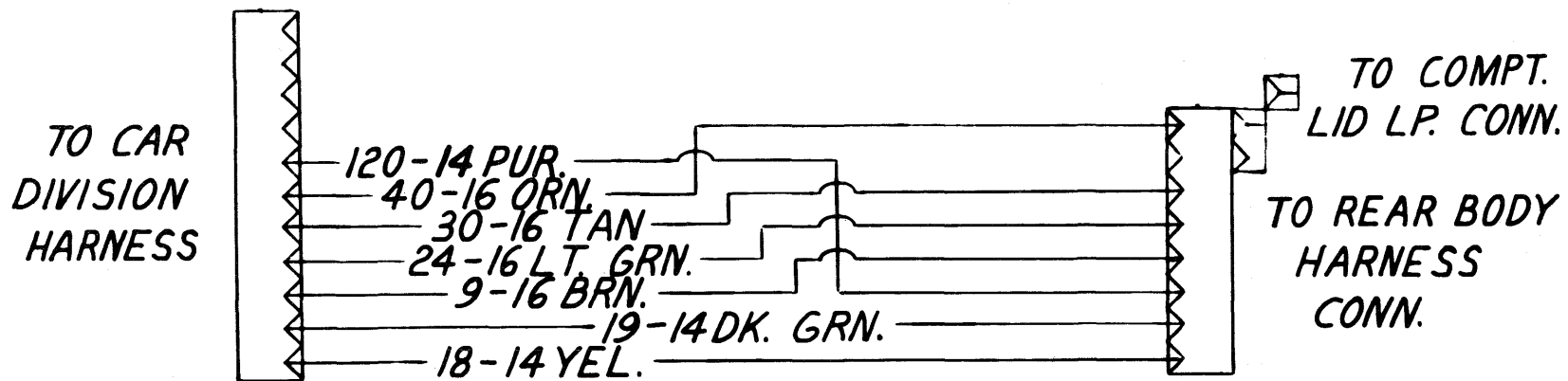
Fig. 10-2-Wire Identification Chart

CIRCUIT No.	COLOR	CODE	DESCRIPTION	CIRCUIT No.	COLOR	CODE	DESCRIPTION
2	Red	RED	Feed-Battery Unfused	172	Light Green	LGT GRN	Vent Control - L.F. - Close
9	Brown	BRN	Tail, License and Marker Lamp	173	Yellow	YEL	Vent Control - L.F. - Open
18	Yellow	YEL	Stop / Direction Lamp Rear L.H.	174	Light Green	LGT GRN	Vent Control - R.F. - Close
19	Dark Green	DRK GRN	Stop / Direction Lamp Rear R.H.	175	Yellow/Black	YEL/BLK	Vent Control - R.F. - Open
20	Red	RED	Stop Lamp Trailer	176	Dark Green	DRK GRN	Power Seat Fore
22	White	WHT	Ground Direct-Trailer	177	Yellow	YEL	Power Seat Aft
24	Light Green	LGT GRN	Back Up Lamp	178	Dark Green	DRK GRN	Power Seat 6-Way Fore & Aft
30	Light Tan	LGT TAN	Fuel Gauge to Tank Unit	179	Tan	TAN	Power Seat 6-Way Solenoid - Rear Up & Down
31	Dark Blue	DRK BLU	Electric Fuel Pump	180	Light Green	LGT GRN	Power Seat 6-Way Solenoid - Front Up & Down
32	Yellow	YEL	Feed Mirror Lamp / Map Light	181	Light Blue	LGT BLU	Power Seat - Solenoid Fore & Aft
39	Pink/Black	PNK/BLK	Feed-Ign Sw. "On" Controlled-Fused	182	Yellow	YEL	Power Seat 6-Way-Aft & Down
40	Orange	ORN	Feed-Battery-Fused	183	Light Blue	LGT BLU	Tailgate or Center Partition Window-Up
41	Brown/White	BRN/WHT	Feed-Ign Sw Accsy Controlled-Fused	184	Tan/White	TAN/WHT	Tailgate or Center Partition Window-Down
43	Yellow	YEL	Radio Feed	185	Tan	TAN	Vent Control L.R. - Open
44	Dark Green	DRK GRN	I.P. & Lights Feed (Usually Light Sw to Fuse)	186	Gray	GRA	Vent Control L.R. - Close
45	Black	BLK	Marker & Clearance Lamps (Trailers- ICC Req.)	187	Tan/Black	TAN/BLK	Vent Control R.R. - Open
46	Dark Blue	DRK BLU	Rear Seat Spkr Feed (Single Radio or Right Stereo)	188	Gray/Black	GRA/BLK	Vent Control R.R. - Close
47	Dark Blue	DRK BLU	Aux Circuit (Trailer)	189	Dark Green	DRK GRN	Power Seat - 4-Way - Fore & Down
60	Orange/Black	ORN/BLK	Feed-Battery - Circuit Breaker Protected	190	Yellow	YEL	Power Seat - 4-Way - Aft & Up
65	Purple	PPL	Blower Motor to Relay	191	Light Green	LGT GRN	Power Seat - 4-Way Solenoid -Up & Down
70	Red/White	RED/WHT	Feed-Relay Controlled - Ign Sw Controlled	192	Purple	PPL	Defogger-Hi or Single Speed /Elec Htd B/Wdo
90	Pink/Black	PNK/BLK	Feed-Outout Sw Controlled - Circuit Breaker Controlled	193	White/Orange/Purple	WHT/ORN/PPL	Defogger - Low Speed - (.38 ohms/ft)
91	Black	BLK	Windshield Wiper - Low	194	Black	BLK	Electric Door Lock - Unlock
92	Light Blue	LGT BLU	Windshield Wiper - High	195	Dark Green/Yellow	DRK GRN/YEL	Electric Door Lock-Lock
93	Yellow	YEL	Windshield Wiper - Motor Feed	199	Brown	BRN	Rear Seat Spkr-Feed from Radio Left Stereo
94	Dark Blue	DRK BLU	Windshield Wiper Switch to Washer	200	Light Green	LGT GRN	Front Spkr-Feed from Radio-Single or Right Stereo
125	Yellow	YEL	Door Jamb Switch	201	Tan	TAN	Front Spkr-Feed from Radio- Left Stereo
126	Black	BLK	Seat Back Lock	205	White/Black	WHT/BLK	Seat Belt Sensor to Retractor (Grd)
141	Brown/Black	BRN/BLK	Feed-Ign Sw - "Accsy" Controlled	206	Black	BLK	Neutral Start Sw to Buzzer & Lamp
142	Black	BLK	Rear Compt Lid Lock Release	207	Yellow/Black	YEL/BLK	Seat Sensor to Neutral Start Sw (Lamp & Buzzer Grd)
150	Black	BLK	Ground Circuit - Direct	208	Black	BLK	Switch Controlled Grd (T.C.S.)
"	Light Green	LGT GRN	" " " "	210	White	WHT	Power Seat - 6-Way-Fore & Down ("A" Body)
"	Nat White	NAT WHT	" " " "	211	Dark Blue	DRK BLU	Power Seat - 6-Way-Aft & Up ("A" Body)
"	Purple	PPL	" " " "	212	Yellow-Blk Stripe	YEL-BLK STR	L.H. Seat Sensor
"	Light Blue	LGT BLU	" " " "	213	Dark Blue	DRK BLU	Center Seat Sensor
151	Blk or Blk-Wht Str	BLK or BLK-WHT-STR	" " " "	214	Gray	GRA	R.H. Seat Sensor
152	Black	BLK	" " " "	215	Tan/Black	TAN/BLK	L.H. Buckle Switch
153	Black	BLK	" " " "	216	Dark Blue-Wht Stripe	DRK BLU-WHT STR	Center Buckle Switch
154	Black	BLK	" " " "	217	Gray-Wht Stripe	GRA-WHT STR	Right Buckle Switch
155	Black	BLK	" " " "	218	Dark Green	DRK GRN	Ign Switch Inter Lock Relay
156	White	WHT	Ground Circuit-Sw Controlled-(Body Int Lamps)	233	Purple	PPL	Tail Gate Down
157	White/Black	WHT/BLK	" " " " " " " "	239	Pink/Black	PNK/BLK	Feed-Ign Sw "On" Controlled
158	White/Dark Green	WHT/DRK GRN	" " " " " " " "	240	Orange	ORN	Feed (Battery-Fused)
159	White/Purple	WHT/PPL	Ground - Key Warning Buzzer	261	Yellow	YEL	Theft Deterrent - Alarm Arm
160	White	WHT	Power Antenna - Down	262	Light Green	LGT GRN	Theft Deterrent-Key-Door Unlock & Alarm Disarm
161	Black	BLK	Power Antenna - Up	263	Light Blue	LGT BLU	Theft Deterrent - Alarm
162	Gray	GRA	Power Top - Up	264	Brown-Dbi Wht Stripe	BRN-DBL WHT STR	Theft Deterrent -Key Unlock -All Doors
163	Purple	PPL	Power Top - Down	265	Black-Wht Str	BLK-WHT STR	Theft Deterrent -Door Unlock
164	Dark Blue	DRK BLU	Window Control - L.F. - Up	266	Black/Light Blue	BLK/LGT BLU	Theft Deterrent -Alarm Arm Abort
165	Brown	BRN	Window Control - L.F. - Down	900	Dark Blue	DRK BLU	Feed Lamp Monitor
166	Dark Blue/White	DRK BLU/WHT	Window Control - R.F. - Up	922	Brown	BRN	Rear Spkr - L.H. (Stereo)
167	Tan	TAN	Window Control - R.F. - Down	933	Black	BLK	Electric Heated Back Wdo Glass -Left
168	Dark Green	DRK GRN	Window Control - L.R. - Up	935	White	WHT	Electric Heated Back Wdo Glass -Right
169	Purple	PPL	Window Control - L.R. - Down	950	White	WHT	Ground Circuit
170	Light Green	LGT GRN	Window Control - R.R. - Up	977	Black	BLK	Speaker Ground
171	Purple/White	PPL/WHT	Window Control - R.R. - Down	978	Dark Blue	DRK BLU	Rear Speaker - R.H. (Stereo)

EXAMPLE: CIRCUIT No. 40 18 ORN WIRE COLOR
WIRE GAUGE

8200

Fig. 10-3-Front Body Wiring Harness



**NOTE: THIS HARNESS IS CONSTRUCTED
FROM ALUMINUM SOLID CORE
WIRE**

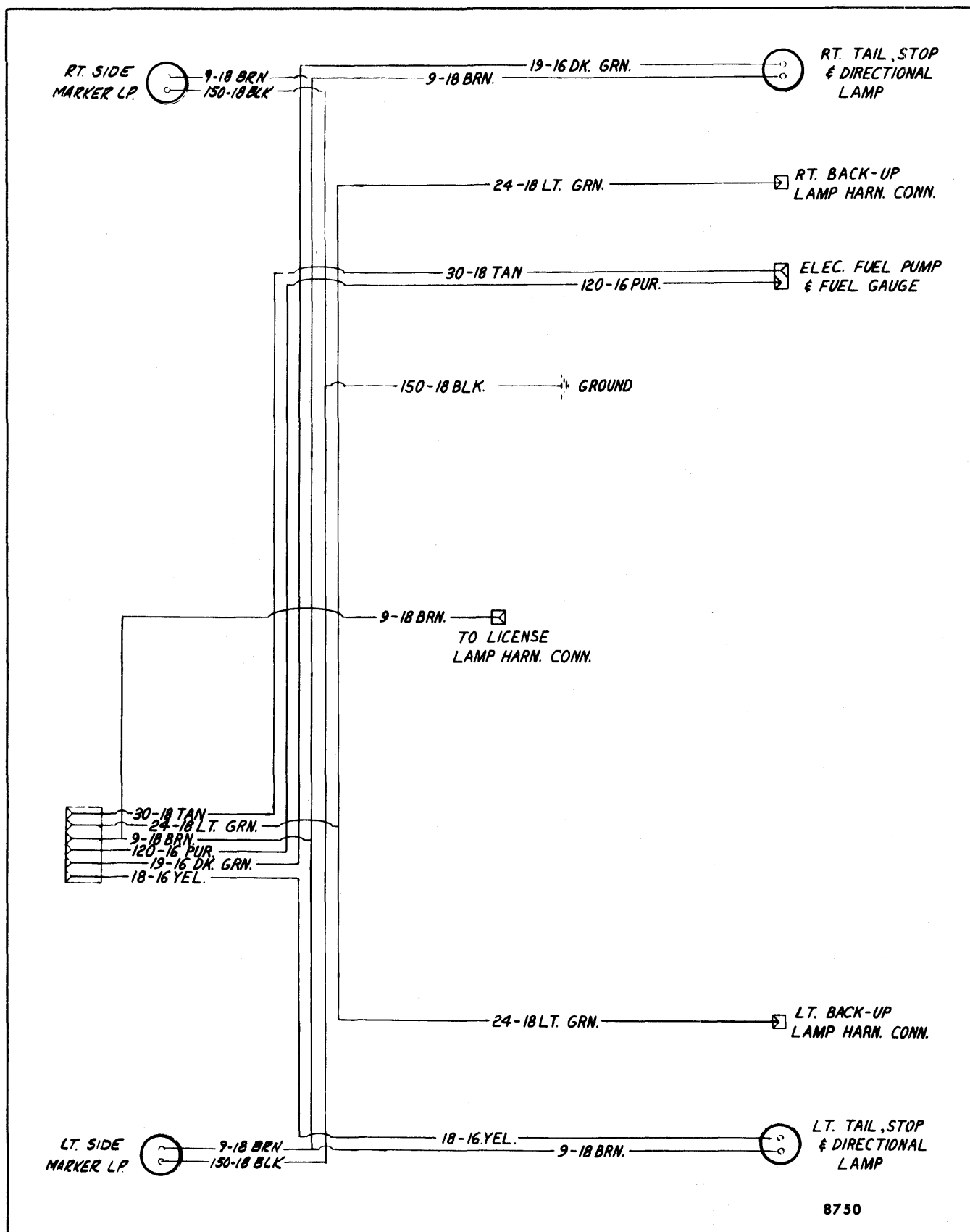


Fig. 10-4-Rear Body Wiring Harness

DEFECTIVE COMPONENTS

Occasionally an "open" or "short" circuit exists within a component, such as a motor, switch, relay, etc. These units can be checked by bypassing the suspected component.

For example, to check an inoperative switch place a No. 12 jumper wire on the switch terminal block between the center terminal (feed) and one of the two motor wire terminals. If the motor operates, the switch is defective. The principle involved here is to determine if the system will operate by bypassing the suspected defective component. This procedure can be applied to check almost all component parts.

OPEN CIRCUITS

1. Visually inspect wire for damage.
2. If wire damage is apparent, check wire on battery side of suspected area by grounding one end of a light tester and inserting pointed end through insulation. If tester lights, current is present.

Perform same operation on opposite side of suspected area. If tester does not light, break is between check points.

NOTE: To check for current between a switch and an operating unit, switch must be actuated to have current present in the wire. Also, be sure that light tester is operating properly before checking circuit. Touch one end of tester to negative terminal of battery and other end to positive terminal. If battery is not discharged and tester is working properly, tester will light.

3. If no wire damage is apparent, check for current in wire midway between power source and inoperative component with a light tester. If tester does not light, check wire at intervals in direction of power source. If tester does light, proceed with tester in opposite direction until the break is located.
4. Repair broken wire as outlined under Body Wiring Repair Procedures.

IMPROPER GROUND

Many times perfectly sound operating units, such as motors, are considered defective and are replaced because an effective ground is not established. To check for proper ground, refer to the following:

1. Attach one end of a No. 12 gauge jumper wire to body of inoperative unit.
2. Connect other end to a good ground, such as a bare metal panel.

NOTE: Due to hinge construction and possibility of heavy lubrication on door hinges, it may be advisable to establish an effective ground when checking circuits in a door assembly.

3. Energize unit. If unit operates, original ground is defective.
4. Re-establish the ground.

"SHORT" CIRCUITS

When a "short" exists in a feed circuit, usually the circuit breaker will be actuated or a fuse will be blown. However, if the "short" is located between a switch and an operating unit, the circuit breaker will not actuate or the fuse blow until the switch is actuated. If the "short" occurs between the circuit breaker (or fuse) and the switch, the circuit will be inoperative all the time. Also, on circuit breaker protected feed circuits that are not ignition controlled, a "drain" on the battery will continue until the "short" is repaired or the battery runs down.

A short in a grounded circuit, such as used in interior lighting, will not cause the circuit to be inoperative. However, a short in a grounding circuit will cause continuous operation of the operating unit until corrected.

Short Tester Checking Procedure

Locating a short circuit depends largely on the symptoms. As an aid in locating a "short" in a feed circuit, a labor-saving device known as a "short tester" (J-8681, BT-1120 or equivalent) may be utilized. Its advantage is the fact that it does not require trim removal prior to testing operations. All short testers have the following parts in common:

1. Two leads with alligator clips (for bypassing an existing circuit breaker or fuse).
2. A 10-15 amp circuit breaker (to replace the existing circuit breaker or fuse).
3. A meter for detecting intermittent electrical current.

The meter is designed to react to the magnetic lines of force that surround an energized wire or conductor. However, the current must be interrupted at intervals by means of a circuit breaker, incorporated

into the testing device, in order to cause the meter needle to deflect. The use of a "short" tester should include the following steps:

1. Reference should be made to service manual electrical diagrams in order to establish proper wire color identification.
2. Remove affected circuit breaker or blown fuse and substitute either of these items with circuit breaker or tester. This is accomplished by connecting the tester leads to input and output side of fuse clip.
3. The tester may respond immediately by making a clicking noise, and on some testers, it may be accompanied by a flashing lamp. This response is an indication that "short" is located in FEED wire between power source and switch. If tester does not respond, proceed as follows:
 - a. Turn on or actuate all switches in the inoperative circuit.
 - b. Observe all lights or units affected by actuating all switches. The light or unit that DOES NOT operate intermittently but causes tester to react is in "shorted" circuit and indicates side of car that is affected.

NOTE: When affected circuit has been positively identified, reference should again be made to proper wire diagram as an aid in steps that follow. In addition, switch in circuit being checked must be held in closed position.

4. Beginning at power source for inoperative circuit, place tester meter directly over wire (or harness) with meter arrows parallel to wire(s) being checked. The meter needle will deflect noticeably each time tester completes the circuit.

NOTE: Since this test will most often be made over intervening layers of trim material (cloth, rubber, plastic, metal), it may be necessary to move meter laterally over circuit at each check point to achieve strongest signal on meter.

5. Check progressively with meter along circuit from power source to inoperative unit. A sharp DECREASE in AMOUNT of meter needle deflection will indicate location (within 4-5 inches) of "short". It must be remembered, however, that above meter reaction would also occur if wrong circuit was followed or meter was not held directly above circuit (reference "NOTE", in Step 4).
6. Once location of "short" is accurately estab-

lished, necessary trim parts may be removed to perform repairs.

BODY WIRING REPAIR PROCEDURES

Aluminum Wiring (Front Body Wiring Harness Only, Fig. 10-3)

The aluminum front body wiring harness consists of 14 and 16 gauge insulated wires and is enclosed in a brown colored plastic conduit (copper wires are encased in a black conduit).

Due to reduced flexibility of aluminum wiring when compared to copper, the aluminum harness is used only in a location where it will remain in a stationary position. Also, a special repair kit, part no. 1684873 or equivalent, is available when repairs are necessary to aluminum wiring harness.

The kit consists of an assortment of 6" long aluminum wires with terminals attached to one end, splice clips, tube of corrosion preventive compound and instruction sheet. To insure minimum resistance through a circuit when making repairs, it is essential that the materials included in this kit be utilized as outlined below. This is necessary to minimize the possibility of galvanic corrosion or increased resistance occurring between the terminal and wire and/or splice clip and wire. Increased resistance would have a material affect on the operation of the electrical components in the circuit being repaired.

1. TERMINAL REPLACEMENT

- a. Cut off approximately six inches (6") of wire connected to defective terminal.
- b. Using proper gauge wire strippers, strip off approximately 1/4" of insulation from end of wire to be repaired and wire from kit with terminal attached.

CAUTION: Care should be exercised when stripping insulation from wire. If proper gauge strippers are not used, damage to wire may occur and weaken harness assembly at this point.

- c. Place end of one wire in either end of splice clip and crimp firmly to wire. Repeat with remaining wire.

CAUTION: To prevent possible damage to wire, do not over crimp near ends of splice clip.

- d. When splice is completed, apply a coat of corrosion preventive compound (petroleum

jelly) included in the repair kit to splice area and terminal.

- e. Apply tape to spliced area to insulate.
 - f. Insert terminal into proper connector cavity making sure it is firmly seated.
2. **SPLICING TO CORRECT OPEN AND SHORT CIRCUITS** - Carefully strip ends of wire on both sides of open or shorted circuit.

Then complete steps "c, d and e" under Terminal Replacement Procedure.

Copper Wiring (All Harnesses Except Front Body Wiring Harness)

Copper wiring is encased in a black conduit and can be repaired using conventional methods such as soldering and taping, solderless connectors, etc. In addition, terminal, connectors, etc., are available as replacement parts.

POWER WINDOWS

DESCRIPTION

The wiring harness for the electrically operated windows consists of the following major sections:

1. **Crossover or Center Harness** - this harness is installed beneath the instrument panel in a conduit and completes the circuit from the power source to all door windows.
2. **Front Door Window Harness** - the impact bar and reinforcements reduce accessibility for power window wiring harness. Therefore, if replacement of door harness should become necessary, attach a leader to the end of the harness before removal from the door. The harness is routed directly from the door hinge pillar entrance to the inboard side of the door inner panel and routed in the depressions provided.
3. **Feed Harness to Rear Doors** - this harness is routed from the crossover harness at the shroud side panel (right and left side similar) into the conduit that is secured to the inboard side of the rocker panel and exits at the center pillar. This

harness terminates at the window motor and window switch.

Power windows are operated by a rectangular shaped 12 volt series-wound motor with an internal circuit breaker and a self-locking rubber coupled gear drive. The harness to the door window motor connector is designed with a locking embossment to insure a positive connection. When disengaging the harness connector from the door motor, it is necessary to depress the thumb release. When installing the harness, the thumb release must be held depressed until the embossment on the female connector is locked in the hole of the motor connector.

A junction block (Fig. 10-5) located on the reinforcement at the left shroud is used to supply current to power operated components. Current is supplied to the junction block from the circuit breaker (plug-in type located in the fuse block), and the power window harness plugs into the junction block.

All four button window control switches incorporate an elongated positive locking non-conductive stud. The switch is secured to the harness connector by a "Tinnerman" type nut (Fig. 10-6).

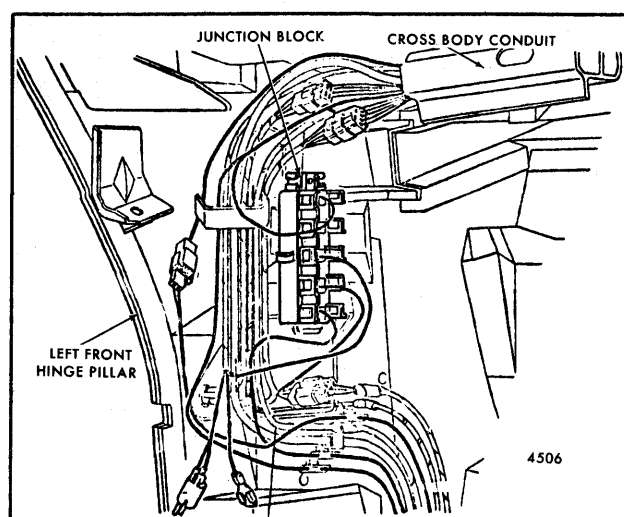


Fig. 10-5-Accessory Junction Block

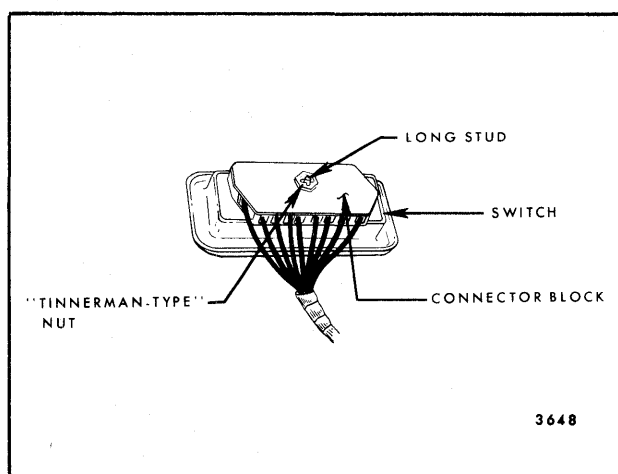
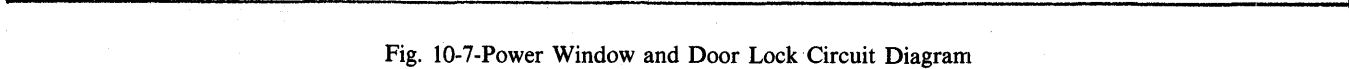


Fig. 10-6-Four Button Trim Pad Switch - Arm Rest Switch Similar



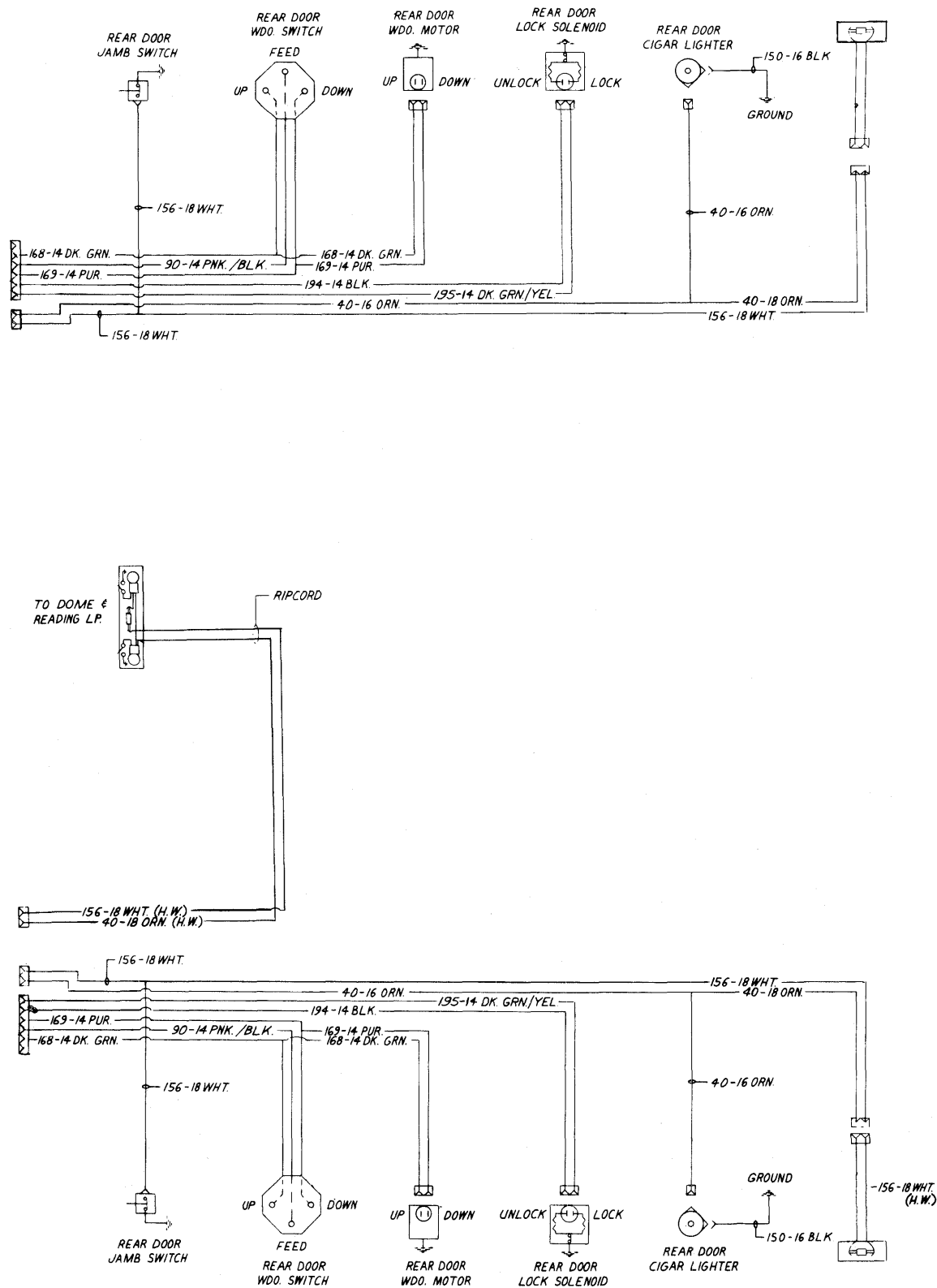


Fig. 10-8-Power Window and Door Lock Circuit Diagram

In addition, a two position ("Lock-Normal") window block out (cut out) switch is installed on the left front door arm rest. This switch incorporates a retaining pin which protrudes through a hole in the harness connector back plate and a push on "Tinner-man" type nut that is snapped over the pin.

The window block out switch button should be left in the "NORMAL" position when ignition switch is "ON" to permit normal operation of power windows from all switch locations. If the control button is in the "LOCK" position, with the ignition switch "ON", the windows will operate only from the master control switch.

POWER WINDOW CIRCUIT CHECKING PROCEDURES

It may be necessary to use only one or all of the procedures outlined to locate an electrical failure in the circuit. If the location of the failure is evident, follow only the steps required to check the affected wire or component. If the location of the failure is not evident, follow the procedure as outlined. Be sure to check the harness connectors for proper engagement and become familiar with the power window and door lock circuit diagrams (Figs. 10-7 and 10-8).

Checking Feed Circuit Continuity at Circuit Breaker (Located in Fuse Block)

1. Connect one test light lead to battery side of circuit breaker and ground other lead. If tester does not light, there is an open or short circuit in feed circuit to breaker.
2. To check circuit breaker, connect one test light to output side of breaker (the wire opposite the power source feed to the breaker) and ground other lead. If tester does not light, circuit breaker is inoperative.

Checking Master Window Control Switch (Refer to Figs. 10-7 and 10-8)

1. With ignition switch "ON", connect one test light lead to master window control switch feed terminal (red/white stripe wire) of switch block and ground other test lead.
2. If tester does not light, there is an open or short circuit between the ignition switch and master control switch.
3. If tester lights with the ignition switch on, insert one end of a No. 12 gauge jumper wire into the switch feed terminal (red/white stripe wire) in

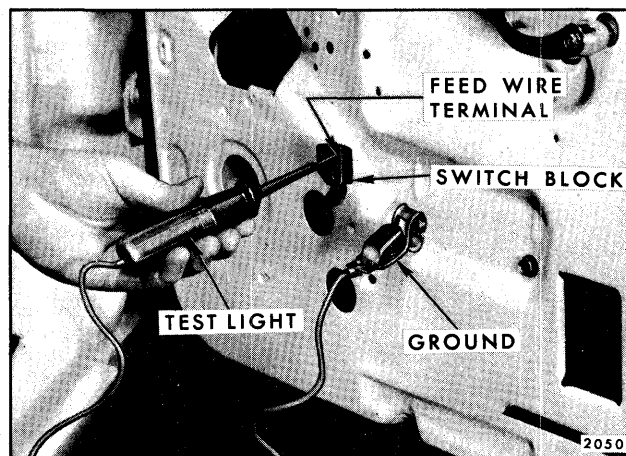


Fig. 10-9-Checking Feed Circuit

the switch block and the other end to one of the motor lead terminals. Repeat this check on the remaining motor lead terminal. If motor operates with jumper, but does not operate with the switch, the switch is defective.

Checking Window Control Switch, Except Master Control Switch (Refer to Figs. 10-7 and 10-8).

1. Connect one test light lead to feed terminal of switch block and ground other tester lead to body metal (Fig. 10-9).
2. If tester does not light, check window block out switch as outlined below. If block out switch is OK, there is an open or short circuit between window control switch and block out switch.
3. If tester lights, insert one end of a No. 12 gauge jumper wire to the switch feed terminal and the other end to one of the motor lead terminals in the switch block. Repeat this check on the remaining motor lead terminal (Fig. 10-10).

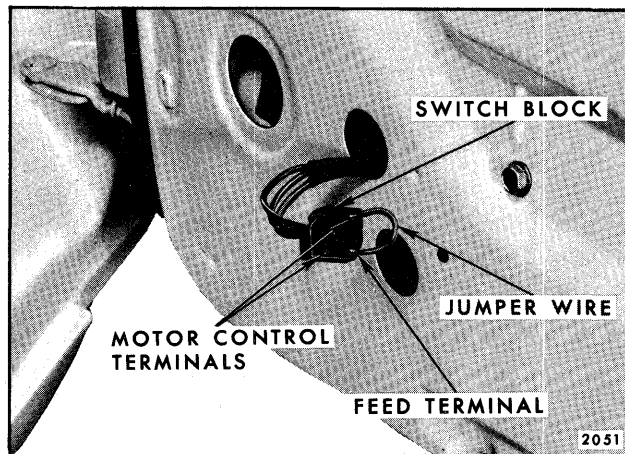


Fig. 10-10-Checking Window Control Switch

- If the window operates with the jumper wire, but does not operate with the switch, the switch is defective.

Checking Window Block Out Switch (Refer to Figs. 10-7 and 10-8)

- With the ignition switch "ON", insert one end of a No. 12 gauge jumper wire into the terminal with the red/white stripe wire and the other end into the terminal with the pink/black stripe wire.
- Operate control switches. If any of the windows operate with the jumper but not with the block out switch, the switch is defective.

Checking Wires Between Door Window Switch and Door Window Motor

- Disengage harness connector from window motor. The thumb release on the harness connector must be depressed before it can be disengaged from the motor.
- Insert one end of a No. 12 gauge jumper wire to the switch feed terminal and the other end to one of the motor lead terminals in the switch block (Fig. 10-10).
- With test light, check for current at both motor harness connector terminals one at a time. If tester does not light, at one or both terminals, there is an open or short circuit in the harness between the control switch and motor connector (Fig. 10-11). If the tester lights, the motor may be defective. Check motor as outlined below.

Checking Window Motor

- Check window regulator and channels for possible mechanical bind of window.

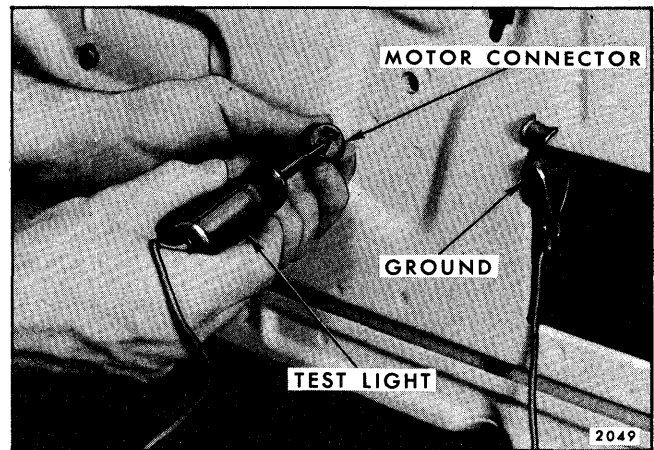


Fig. 10-11-Checking Circuit Between Switch and Motor

- Check attachment of window motor to insure an effective ground.
- Connect one end of a No. 12 gauge jumper wire to the power source and the other end to one of the terminals on the window motor.
- Check the other motor terminal in the same manner. If the motor fails to operate with a jumper wire, the motor is defective and should be replaced.

Diagnosis Chart

The following typical conditions and corrections have been listed as an aid for eliminating electrical problems in the power window electrical circuit. It should be noted that multiple problems in the circuit may lead to a combination of conditions, each of which must be checked separately.

DIAGNOSIS CHART - POWER WINDOWS

CONDITION	APPARENT CAUSE	CORRECTION
1. None of the windows will operate with ignition switch "ON".	A. Short or open circuit in power feed circuit.	<p>A. Check circuit breaker operation.</p> <p>B. Check feed connection to power harness beneath instrument panel.</p> <p>C. Check feed circuit wires for possible short or open circuit.</p>

TROUBLE SHOOTING (Cont'd.)

CONDITION	APPARENT CAUSE	CORRECTION
2. Right rear door window does not operate from master control switch on left door or from control switch on right rear door. Left door window operates.	<p>A. Short or open circuit between right rear door harness and power window front harness.</p> <p>B. Short or open circuit in affected window control switch or window motor circuit.</p> <p>C. Possible mechanical failure or bind in window channels.</p> <p>D. Defective window motor.</p>	<p>A. Check harness connectors beneath outer end of instrument panel for proper installation.</p> <p>B. Check wires in power window front harness for possible short or open circuit.</p> <p>C. Check operation of rear door window control switch.</p> <p>D. Check circuit from window control switch to window motor for short or open circuit.</p> <p>E. Check window regulator and channels for possible mechanical failure or bind.</p> <p>F. Check operation of motor.</p>
3. Right door windows will operate from left door master control switch but will not operate from right door control switch. Left door windows operate.	A. Open or short circuit in front harness feed wire circuit.	A. Check feed wire in front harness for possible short or open circuit.
4. All windows operate from master control switch on left front door with ignition switch on, but do not operate from right front and rear door(s) switches.	A. Open circuit in window block out switch feed circuit.	<p>A. Check window block out switch.</p> <p>B. Check window block out switch feed circuit.</p>

POWER SEATS

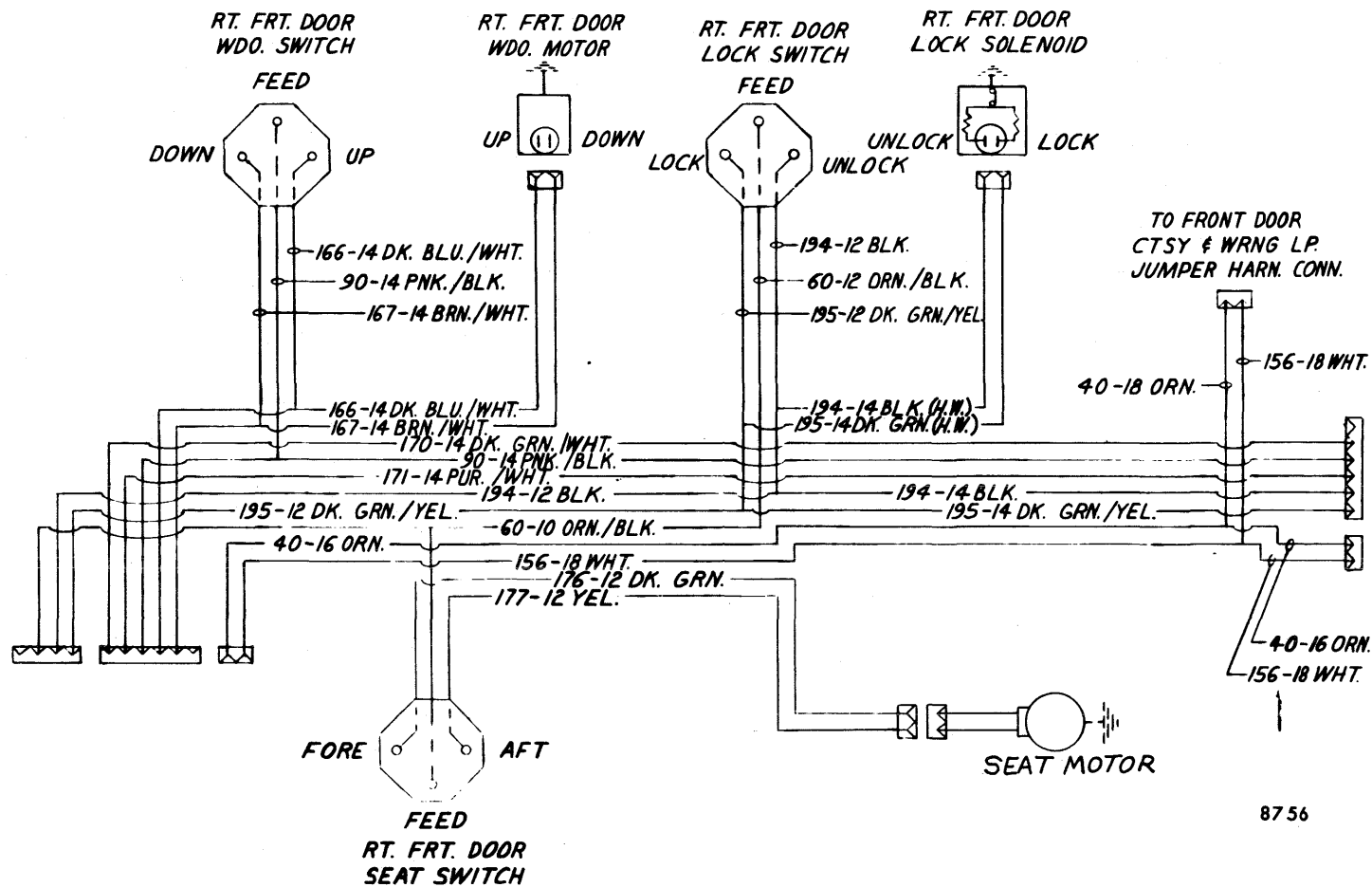
HORIZONTAL SEATS (Passenger's Side Only)

Description

The seat adjusters are actuated by a 12 volt series-wound motor located near the front right side of the seat bottom frame, and are energized through a control switch installed in the door arm rest.

The horizontal seat circuit (Fig. 10-12) is protected by a fuse panel mounted circuit breaker. A junction block (Fig. 10-13) located on the reinforcement at the left shroud is used to supply current to the power operated seat circuit. Current is supplied to the junction block from the circuit breaker, and the power seat harness feed wire plugs into the junction block.

Fig. 10-12-Horizontal Seat Circuit



87 56

DIAGNOSIS CHART - HORIZONTAL SEAT

The following typical conditions and corrections

have been listed as an aid for eliminating problems in the horizontal seat circuit:

CONDITION	APPARENT CAUSE	CORRECTION
1. Seat motor does not operate in either forward or rearward direction.	<p>A. Open or short circuit in feed harness.</p> <p>B. Inoperative motor.</p>	<p>A. Connect one test light lead to feed terminal of switch block (orange/black wire) and ground other tester lead to body metal. If tester does not light, there is an open or short circuit between switch and power source.</p> <p>B. Check operation of seat control switch with jumper wire. See "Checking Door Window Control Switch" for similar operation.</p> <p>C. Check circuit from control switch to motor for short or open circuit and check ground wire attachment of adjuster.</p> <p>D. Check operation of motor with No. 12 gauge jumper wire. Connect one end of jumper wire to power source and the other end to one of the seat motor terminals. Motor should operate.</p> <p>Perform same check at the other motor terminal. If motor does not operate, repair or replace motor as required.</p>
2. Seat motor operates in only one direction.	<p>A. Defective switch.</p> <p>B. Open or short circuit in motor feed wires.</p> <p>C. Defective seat motor.</p>	<p>A. Check operation of seat control switch with jumper wire.</p> <p>B. Check circuit from control switch to motor for short or open circuit.</p> <p>C. Check operation of motor with No. 12 gauge jumper wire. Connect one end of jumper wire to power source and the other end to one of the seat motor terminals. Perform same check at the other motor terminal. If motor does not operate, repair or replace motor as required.</p>

SIX-WAY SEATS (Driver's Side Only)

Description

The seat adjusters for the six-way seats are actuated by a 12 volt shunt wound motor installed at the left side of the seat assembly.

The motor is energized by a three button-type control switch located in the left front door arm rest.

The power seat circuit is protected by a circuit breaker (refer to Electrical Section Description for location).

A junction block (Fig. 10-13) located on the reinforcement at the left shroud is used to supply current to the power operated seat circuit. Current is supplied to the junction block from the circuit breaker, and the power seat harness feed wire plugs into the junction block.

The electrical portion of the six-way seat operates as follows:

When the control switch is actuated, current flows to the transmission solenoid which controls the desired seat movement. The energizing of the solenoid coil results in the solenoid plunger dog engaging the gear mechanism to rotate the control cable. The same switch action which energized the solenoid completes the circuit to one of the motor field coils. The current flows through the relay coil, closes the contacts between the relay power source and the motor armature feed wire, and results in the operation of the seat motor. When the control switch lever is released, the switch contacts open, a spring returns the shaft dog and solenoid plunger to their original position disengaging them from the gear dog.

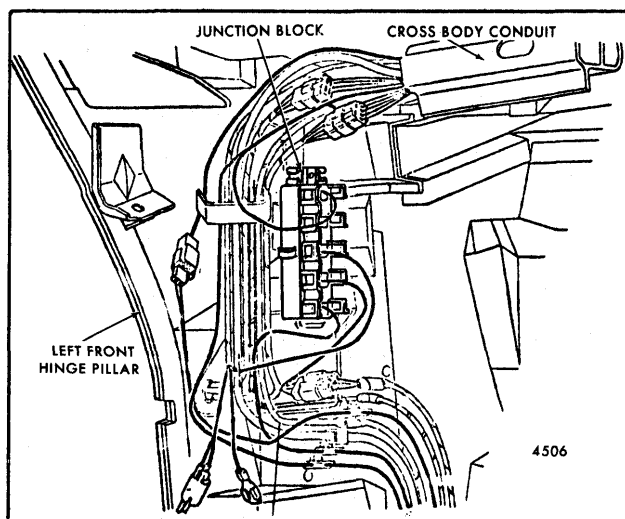


Fig. 10-13-Accessory Junction Block

CIRCUIT CHECKING PROCEDURES - SIX-WAY SEAT

It may be necessary to use only one or all of the procedures outlined to locate an electrical failure in the circuit. If the location of the failure is evident, follow only the steps required to check the affected wire or component. If the location of the failure is not evident, follow the procedure as outlined. Before performing any extensive checking procedures, check the seat adjuster drive cables for proper attachment. In addition, study the seat circuit diagram to become familiar with the circuit (Fig. 10-14).

Checking Feed Circuit Continuity at Circuit Breaker

1. Connect one test light lead to input side of circuit breaker and ground other lead. If tester does not light, there is an open or short circuit in feed circuit to breaker.
2. To check circuit breaker, connect test light lead to the output side of breaker and ground other lead. If tester does not light, circuit breaker is inoperative.

Checking Feed Circuit Continuity at Relay on Seat Motor

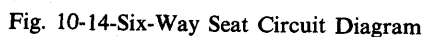
1. Disengage triple connector body from seat motor relay terminal (Fig. 10-15).
2. Insert one test lead into relay power feed (orange/black wire) connector slot or harness, and ground other test light lead.
3. If tester does not light, there is no current at end of feed wire. Failure is caused by an open or short in feed circuit.

Check Feed Circuit Continuity at Seat Control Switch

1. Connect one test light lead to feed terminal of switch block and ground other test lead to body metal.
2. If tester does not light, there is an open or short circuit between switch and power source.

Checking Seat Control Switch

NOTE: In the following operations which specify the seat control switch to be actuated, a switch that has



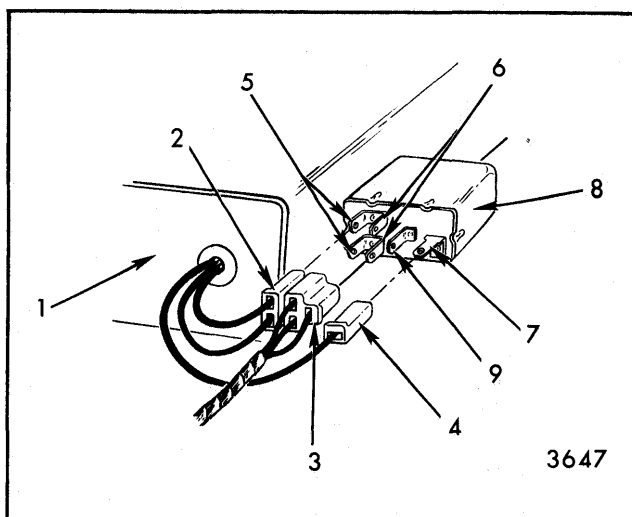


Fig. 10-15-Seat Adjuster Motor Control Relay

- | | |
|--------------------------------------|---------------------------|
| 1. Seat Adjuster Motor | 5. Motor Field Feed Studs |
| 2. Motor Field Connector | 6. Relay Coil Studs |
| 3. Control Switch to Relay Connector | 7. Armature Feed Stud |
| 4. Motor Armature Connector | 8. Motor Control Relay |
| | 9. Relay Input Stud |

been checked for proper operation may be connected to the switch block. If a switch is not available, a three-way jumper wire can be made to perform the switch function. The jumper wire and the switch locations to be connected to obtain a specific movement of the seat are shown in Figure 10-16. If a jumper wire is used, letter the locations on the switch block as indicated in the illustration. Details outlining the making and use of the jumper wire follow the checking procedure.

1. Obtain switch or jumper wire and connect to switch block.
2. Operate switch. If adjusters operate with new switch or jumper wire, but did not operate with original switch, the original switch is defective.
3. Check all six movements of seat adjuster.

Checking Wires Between Control Switch and Motor Relay

1. Disengage triple harness connectors from relay at motor.
2. Insert one test light lead into motor field (yellow or dark green wire) connector slot on harness and ground other lead.
3. Actuate seat switch to energize field wire being tested.

4. If tester does not light, there is no current at end of wire. Failure is caused by an open or short circuit between end of wire and switch. Check other motor field wire in the same manner.

Checking Motor Control Relay

1. Disconnect three motor leads (double and single connector) from relay assembly. These are wires leading from the motor to relay (Fig. 10-15).
2. Connect one end of a jumper wire to one of motor field feed studs on relay and ground other end of the jumper wire.
3. Connect one end of test light to motor armature feed stud on relay and ground other tester lead.
4. With a jumper wire, energize field stud which is not grounded. If tester does not light, relay is defective.

Checking the Motor Assembly

1. Check seat ground wire attachment for proper ground.
2. Disconnect motor armature feed wire and motor field feeds from relay assembly.
3. With a jumper wire, energize armature feed and one of field feeds.
4. If motor does not operate, it is defective. Check other motor field wire in same manner.

Checking the Wire Between Solenoid and Switch

1. Disengage harness connector from transmission.
2. Connect one test light lead to end of harness wire being tested and ground other lead.
3. Operate switch to energize wire being tested. If tester does not light, there is no current at end of wire. Failure is caused by an open or short circuit between end of wire and switch.
4. Check other wires between solenoid and switch in same manner.

Checking Solenoids

1. Check seat ground wire attachment for proper ground.

2. Energize solenoid being checked with jumper wire.

NOTE: If solenoid is functioning, a "click" should be heard when solenoid is energized.

CAUTION: To prevent damaging solenoid, do not energize solenoid for more than one minute.

3. With solenoid energized, actuate seat control switch to energize adjuster motor.
4. If adjusters do not operate, and there is no mechanical failure in seat unit, solenoid is defective.

Three-Way Jumper Wire for Checking Seat Switch

To make jumper wire, obtain two pieces of No. 12 gauge wire, each 4-1/2" long, join one end of each wire as shown in Figure 10-16. The joined end can be inserted in the feed location in the switch block; one of the remaining ends can be inserted into one of the field locations in the switch block; the other end can be inserted into one of the solenoid locations.

NOTE: To obtain a seat movement using a three-way jumper wire at the switch block, the switch feed location, one of the motor field wire locations and one of the solenoid locations must be connected simultaneously. Refer to Figure 10-16.

1. To raise front edge of seat, place jumper in locations A, C and E.

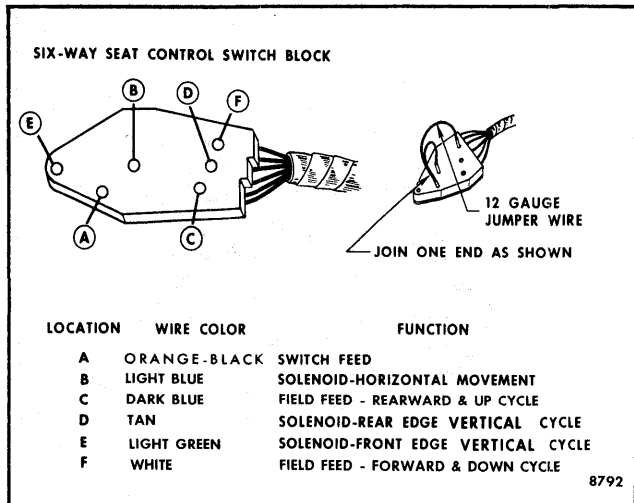


Fig. 10-16-Six-Way Seat Switch Block in Arm Rest

2. To lower front edge of seat, place jumper in locations A, F and E.
3. To raise rear edge of seat, place jumper in locations A, C and D.
4. To lower rear edge of seat, place jumper in locations A, F and D.
5. To move seat rearward, place jumper in locations A, B and C.
6. To move seat forward, place jumper in locations A, B and F.

DIAGNOSIS CHART - SIX-WAY SEAT

CONDITION	APPARENT CAUSE	CORRECTION
1. Seat adjuster motor does not operate.	<p>A. Short or open circuit between power source or switch and motor.</p> <p>B. Defective motor.</p>	<p>A. Check circuit from power source and switch to motor to locate failure.</p> <p>B. Check motor. If defective, repair or replace as required.</p>
2. Seat adjuster motor operates, but seat adjusters are not actuated or seat adjuster motor operates, front edge of seat moves up and seat moves forward and rearward. The rear edge of seat cannot be operated.	<p>A. Short or open circuit between switch and affected solenoid.</p> <p>B. Defective solenoid.</p>	<p>A. Check circuit from switch to solenoid to locate failure.</p> <p>B. Check solenoid. If defective, repair or replace as required.</p>

TROUBLE SHOOTING (Cont'd.)

CONDITION	APPARENT CAUSE	CORRECTION
3. Seat adjuster motor operates and seat adjusters move front and rear edge of seat up and forward but will not move the seat down and rearward or seat adjuster motor operates and seat adjusters move front and rear of seat down and rearward, but will not move the seat up and forward.	A. Short or open circuit between one of the motor field wires and seat control switch. B. Defective field coil in motor.	A. Check circuit between affected motor field wire and seat switch. B. Check motor. If defective, repair or replace as required.

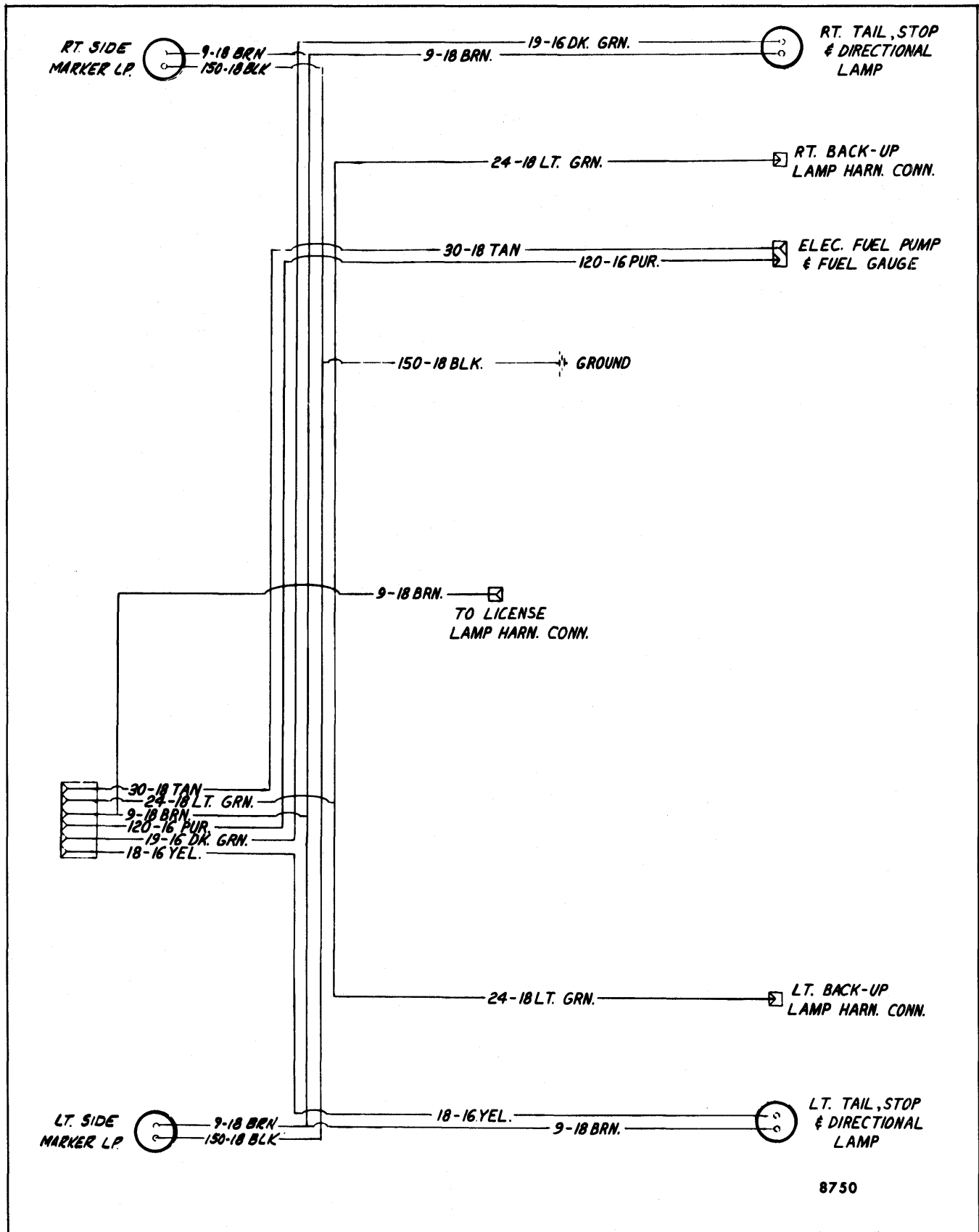


Fig. 10-17-Rear Body Harness Circuit Diagram

EXTERIOR AND INTERIOR LAMPS

TAIL LAMPS AND SIDE MARKER LAMPS

Side marker lamps are incorporated in the tail lamps and operate in conjunction with the tail lamp circuit. Refer to the rear harness circuit diagram (Fig. 10-17) when checking for open or short circuits in tail lamps and/or side marker lamp circuitry.

DOME AND READING LAMPS

The dome lamp operates in conjunction with the door jamb switch and/or interior switch. Feed current is present at the dome lamp at all times and a ground is established through one of the switches. The "grounding" type door jamb switches (Fig. 10-18) are located in the front body hinge pillars and in the center pillars. The dome lamp harness, which contains two solid core wires both color coded white, is connected to the front body harness aft connector.

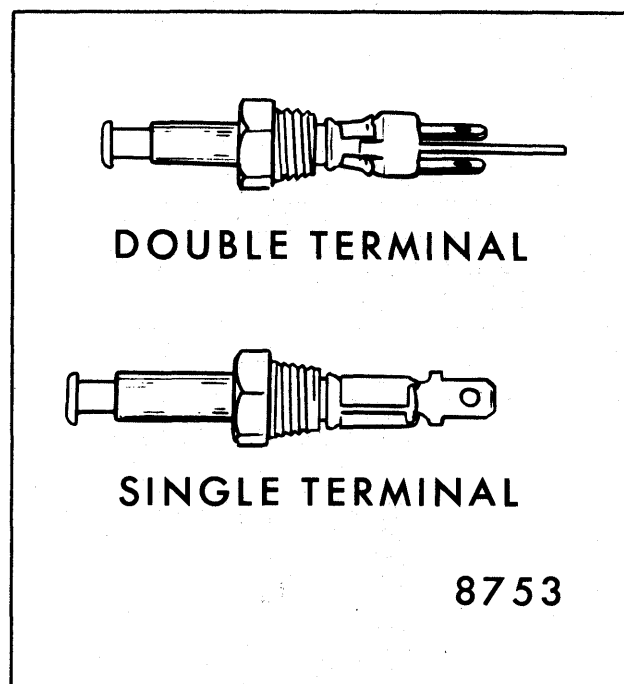


Fig. 10-18-Door Jamb Switches

ILLUMINATED LOCK CYLINDER AND COURTESY LAMP (Refer to Figs. 10-19 and 10-20)

The optional illuminated door lock cylinder at each front door outside handle operates in conjunction with the interior courtesy lamps and door jamb switches. When the door handle push button is depressed, an in-line bulb, located behind the front door trim assembly, and the interior lamps come on. Light is then transferred from the in-line bulb through a fiber optic harness to a lens located above the door lock cylinders which illuminates the lock cylinder face.

The interior and lock cylinder lamps are controlled by a time delay relay located behind the left shroud trim panel. The lamps remain "on" for a period of 20 to 30 seconds and then turn off automatically. The feed circuit is protected by a 20 amp (courtesy lamp) fuse. Access to the in-line bulb can be gained by removing the door lock remote control cover plate (refer to Section 5 for Removal).

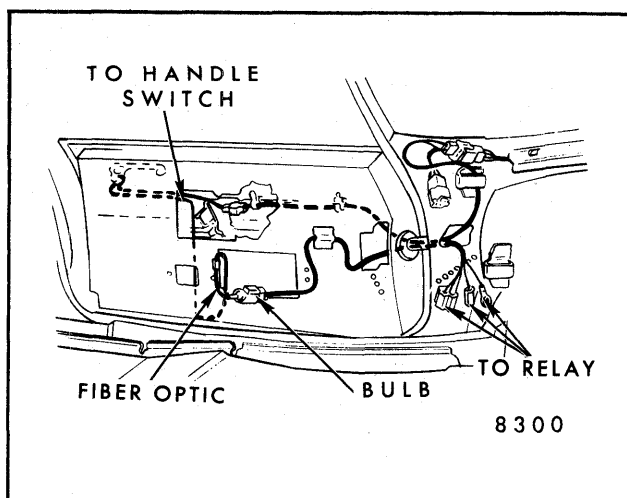


Fig. 10-19-Illuminated Lock Cylinder Routing Diagram

RT. FRT. DOOR
JAMB SWITCHTO RT. FRT. DOOR
ELEC. LOCK, WDO.
CONT., CTSY. & WRNG. LAMP
HARNESS CONN.TO FRT. DOOR ILLUM.
LOCK CYLINDER & FIBER
OPTIC HARNESS CONN.

FIBER OPTIC LEAD

156-18 WHT.

40-18 ORN.
156-18 WHT.
157-18 WHT./BLK.
166-14 DK. BLU./WHT.
167-14 BRN./WHT.
90-14 PNK./BLK.
170-14 DK. GRN./WHT.
171-14 PPL./WHT.

157-18 WHT/BLK

FIBER OPTIC
LAMP & SOCKETTO DOOR
HANDLE
SWITCH

60-10 ORN./BLK.
194-12 BLK.
195-12 DK. GRN./YEL.

159-18 BLK./PPL

TO FRT. BODY
HARN. CONN.FIBER OPTIC
LAMP & SOCKET

157-18 WHT./BLK.

60-10 ORN./BLK.
70-12 RED/WHT.
TO CAR DIVISION
HARNESS

157-18 WHT./BLK.
156-18 WHT.
40-18 ORN.
150-18 BLK.

GROUND

TO RELAY

FIBER OPTIC LEAD

TO FRT. DOOR ILLUM.
LOCK CYLINDER & FIBER
OPTIC HARNESS CONN.LT. FRT. DOOR
JAMB SWITCHTO LT. FRT. DOOR
ELEC. LOCK, WDO.
CONT., CTSY & WRNG. LAMP
HARNESS CONN.

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Fig. 10-20-Illuminated Lock Cylinder and Courtesy Light Circuit Diagram

ELECTRIC DOOR LOCK

DESCRIPTION

The electric door lock system incorporates a solenoid for each door and a control switch for each front door. All doors lock and unlock electrically from either control switch or manually at each door. Each solenoid has an internal circuit breaker which, under extreme conditions, may require up to three minutes to reset. The door lock harness is routed in the power window harness conduit.

CHECKING PROCEDURE (Refer to Figs. 10-21 and 10-22)

NOTE: Before beginning any electrical checks with a test lamp, be sure system is free of mechanical binds.

Junction Block Output

1. Insert test prod into junction block output terminal.
 - a. If lamp does not light, check power feed jumper to junction block.
 - b. If lamp lights, check feed wiring for open or disconnect in circuit.
 - c. If lamp blinks (circuit breaker clicking on and off), locate and repair short circuit in feed wiring.

NOTE: Disconnect other options to isolate shorted circuit, if applicable.

2. Disconnect feed connector (orange/black, dark green and black wires) and insert test lamp prod feed (orange/black) terminal. If no light, locate and repair short or open in feed circuit.

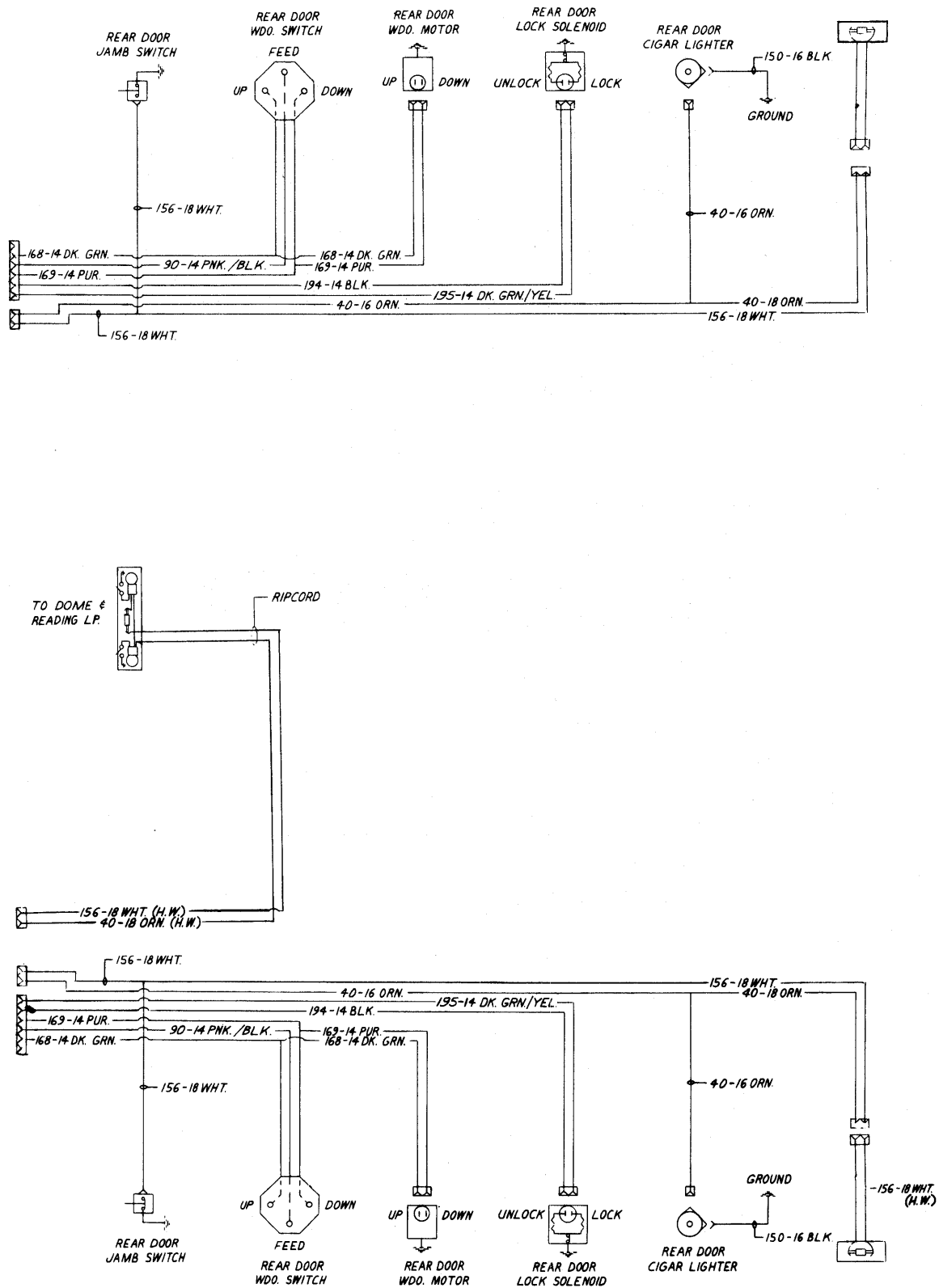
Door Lock Control Switch

1. Insert test lamp prod into feed terminal of switch block. If lamp does not light, locate and repair open or short circuit in orange/black wire.
2. Insert jumper between feed and lock (unlock) terminals. If locks operate in both cycles, replace switch.

Front and/or Rear Door Lock Solenoid

1. Remove door trim panel.
2. Disconnect solenoid connector.
3. Insert test lamp prod into connector.
 - a. If lamp lights at both terminals when switch is activated and solenoid is properly grounded, replace solenoid.
 - b. If lamp does not light at both terminals, locate and repair open or short circuit in black or dark green wire.

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Fig. 10-22-Electric Door Lock Circuit Diagram

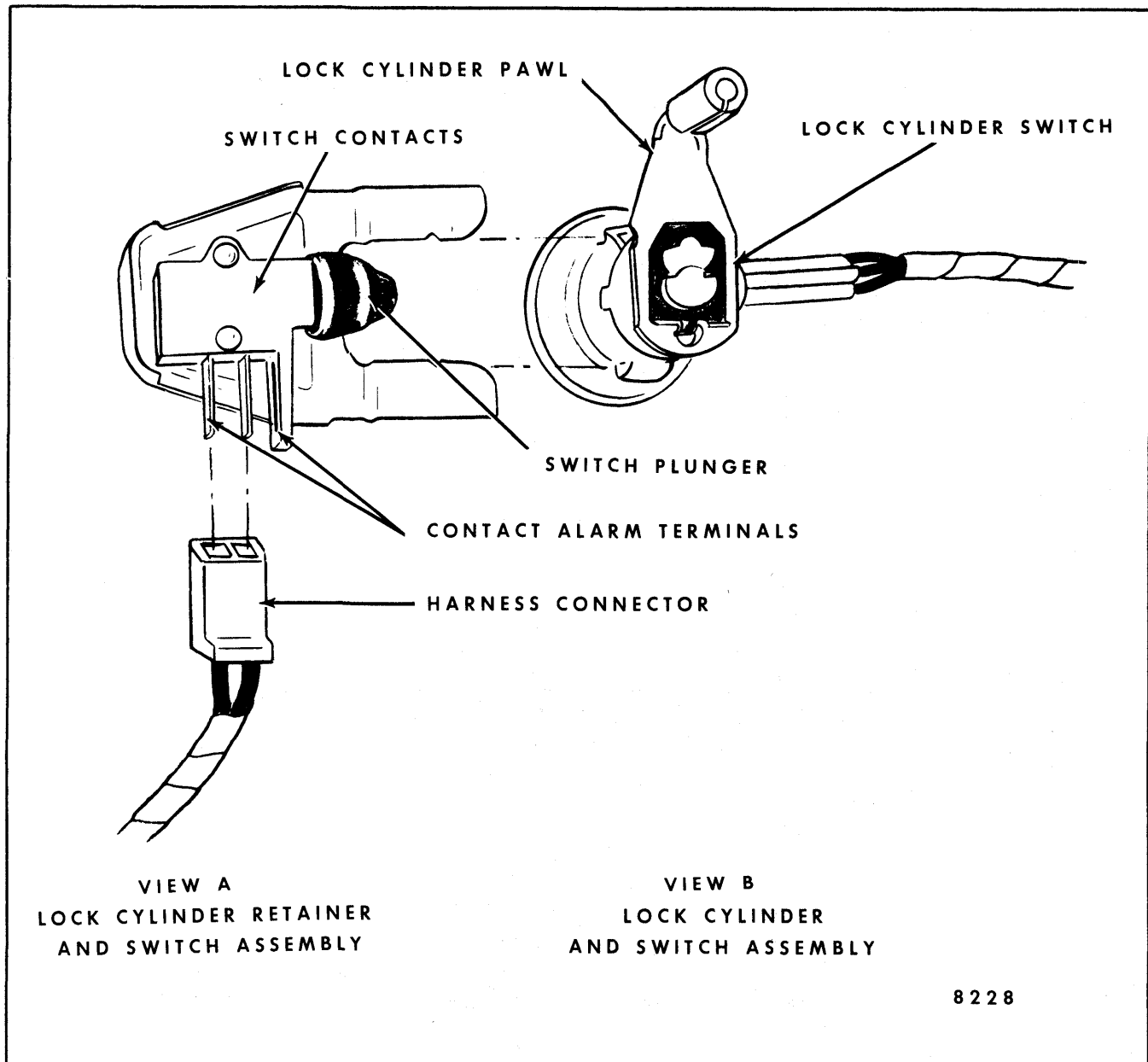
THEFT DETERRENT SYSTEM (Refer to Figure 10-25)

DESCRIPTION

The theft deterrent system is designed to sound an alarm, in case of forced entry into a locked car, by creating a pulsating operation of the horn along with simultaneous flashing of all exterior lamps. Once the system has been activated, it will continue to operate for three to seven minutes and then automatically shut off. It will also rearm itself providing the locks have not been tampered with. However, if the locks have been tampered with, the security system indicator lamp located in the accessory telltale panel

flashes to alert the driver that the system has been activated.

The system is "ARMED" by actuating the power door lock switch to "LOCK" with the door in an open position, and then closing the door. It is activated if either front door or rear compartment lock cylinder is tampered with (forcibly rotated, pulled outboard or pushed inboard). Also, the alarm will activate if any of the doors or hood are opened when



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Fig. 10-23-Front Door Lock Cylinder Switch Assemblies

the system is armed. However, the rear compartment may be entered without setting off the alarm by unlocking the lock with the key. The alarm is set off when the arm circuit is completed to ground through one of the door jamb switches, hood switch or tamper-proof switches located on the rear compartment lock cylinder (Fig. 10-24) and door lock cylinder retainers (Fig. 10-23).

To "DISARM" or shut down (if activated) the system, unlock the door with the key. The disarming switch is an integral part of the lock cylinder and is the only means of disarming the system.

For service information on related components and complete diagnostic procedures, refer to Car Division Service Manual.

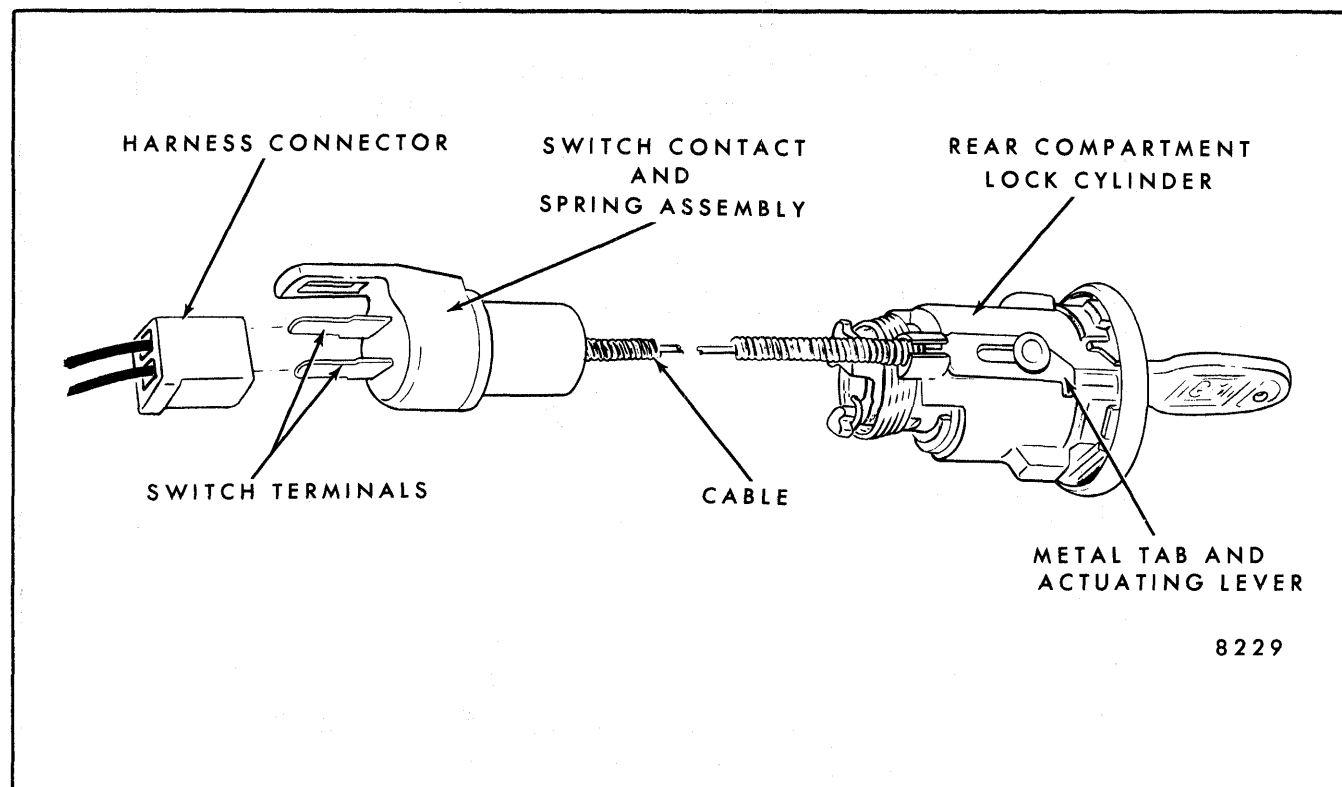


Fig. 10-24-Rear Compartment Lock Cylinder And Switch Assembly



Fig. 10-25-Theft Deterrent Circuit Diagram

ELECTRIC BACK WINDOW GRID DEFOGGER

DESCRIPTION

The back window grid defogger system consists of a tinted glass that has a number of horizontal ceramic silver compound element lines and two vertical bus bars baked into the inside surface during the glass forming operation. Braided wire is soldered to the bus bars on each side of the glass. The lead wires (stranded, round wire) are spliced to the braided wire and covered with an extruded plastic sleeve to insulate them from body metal.

The system operates on 12 volts with a current draw of 20 amps (plus or minus 2 amps) when glass is at 75 degrees F. Under some conditions, heat from the glass may not be detected by finger touch. The length of time required to remove interior fog from the back glass will vary with such conditions as vehicle speed,

outside glass temperature, atmospheric pressure, number of passengers, etc.

This system utilizes an instrument panel mounted switch with an integral indicator lamp. Once the switch has been activated, the system will operate continuously until that switch or ignition is turned "off".

TESTING GRID LINES

To locate inoperative grid lines, start engine and turn on the electric grid defogger system. Ground one test lamp lead and **LIGHTLY** touch the other prod to each grid line. Figure 10-26 illustrates the pattern of test lamp brilliance to be expected with a properly functioning grid.

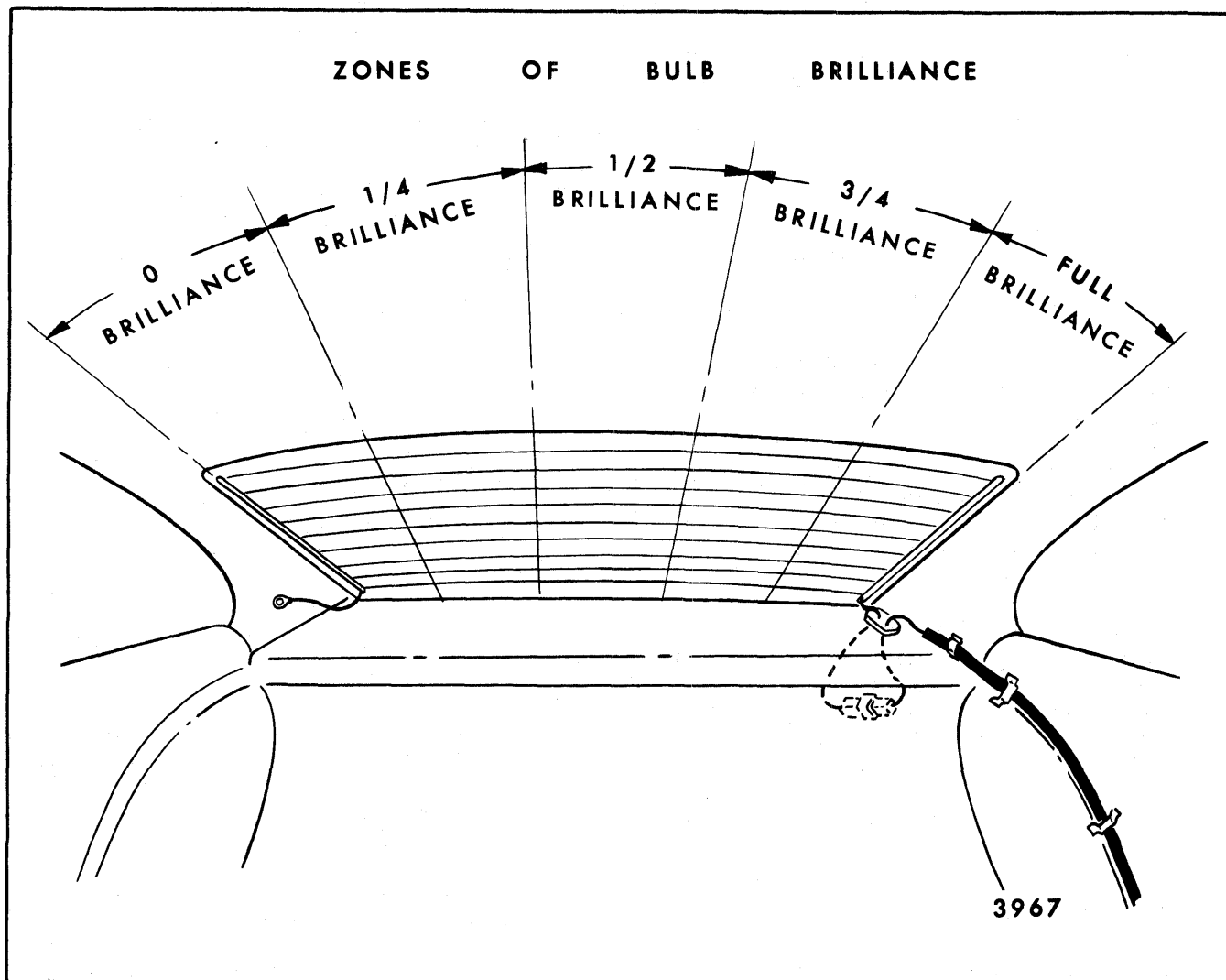


Fig. 10-26-Test Lamp Bulb Brilliance Zones - Normal Operating Electric Grid Defogger

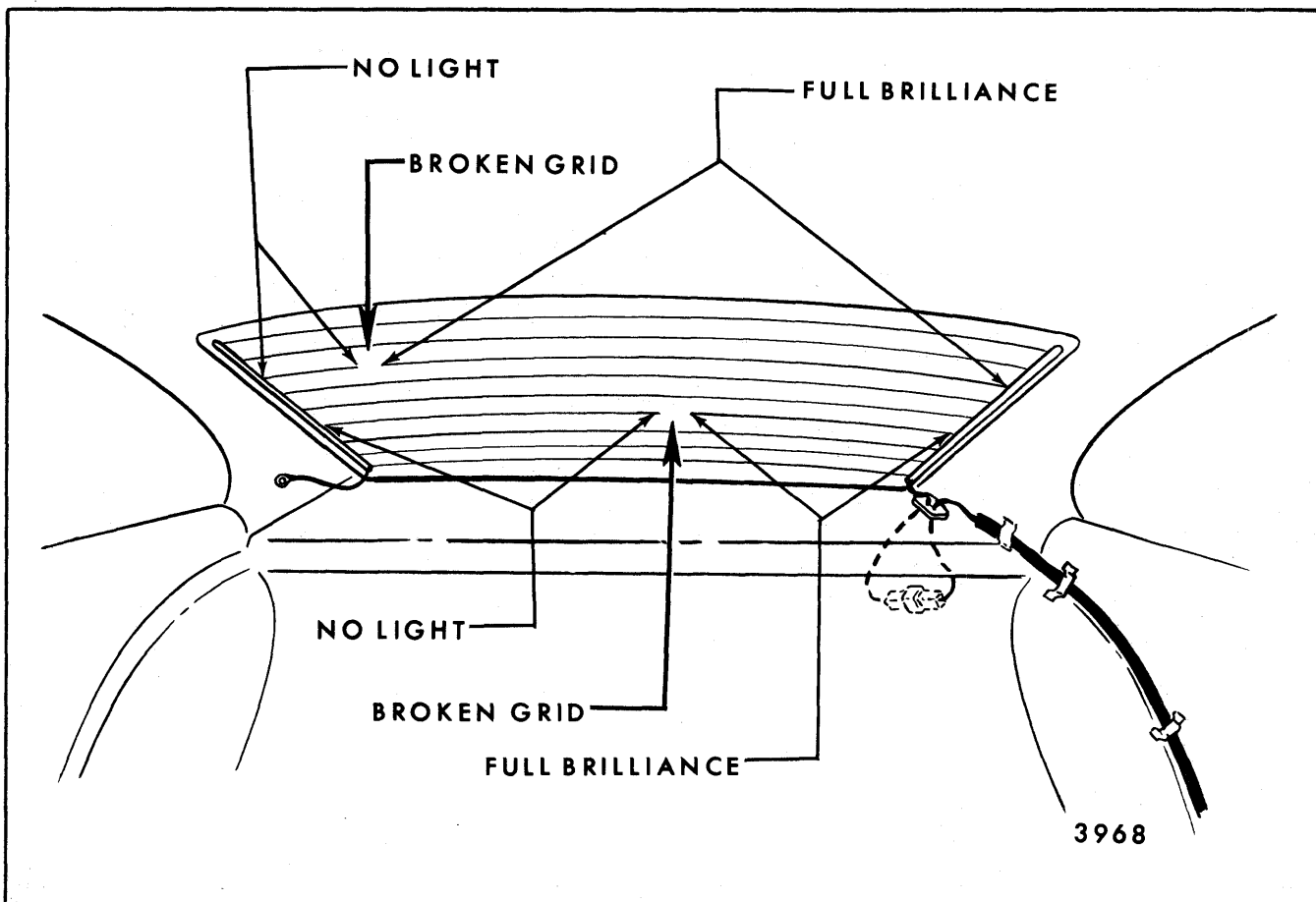


Fig. 10-27-Test Lamp Bulb Brilliance with Broken Grid Lines

NOTE: If test lamp bulb shows full brilliance at both ends of grid lines, check for loose ground wire contact to body metal.

NOTE: The range of zones in Figure 10-26 may vary slightly from one glass to another, however, the bulb brilliance will decrease proportionally to the increased resistance in the grid line as the prod is moved from the left bus bar to the right.

All grid lines must be tested in at least two places to eliminate the possibility of bridging a break. For best results contact each grid line a few inches either side of the glass centerline. If an abnormal light reading is apparent on a specific grid line, place test lamp prod on that grid at the left bus bar and move prod toward the right bus bar until light extinguishes. This will indicate a break in the continuity of the grid line (Fig. 10-27).

GRID LINE REPAIR

A durable repair may be accomplished using the Rear Window Electric Grid Defogger Repair Kit (Part No. 1051223 or equivalent) which consists of:

1. Plastic rectangular shaped mixing plate
2. Decal
3. Syringe of silver plastic
4. Syringe of hardener
5. Mixing stick
6. Instruction sheet

Repair Procedure

1. After the broken grid line has been located and marked (indicate break with a grease pencil on the outside surface of the glass), the system must be shut off.
2. Lightly buff grid line in area to be repaired with fine steel wool buffing approximately 1/4" on both sides of break. Thoroughly wipe with a clean cloth dampened in alcohol. It is necessary that all contaminants be removed from the repair area.

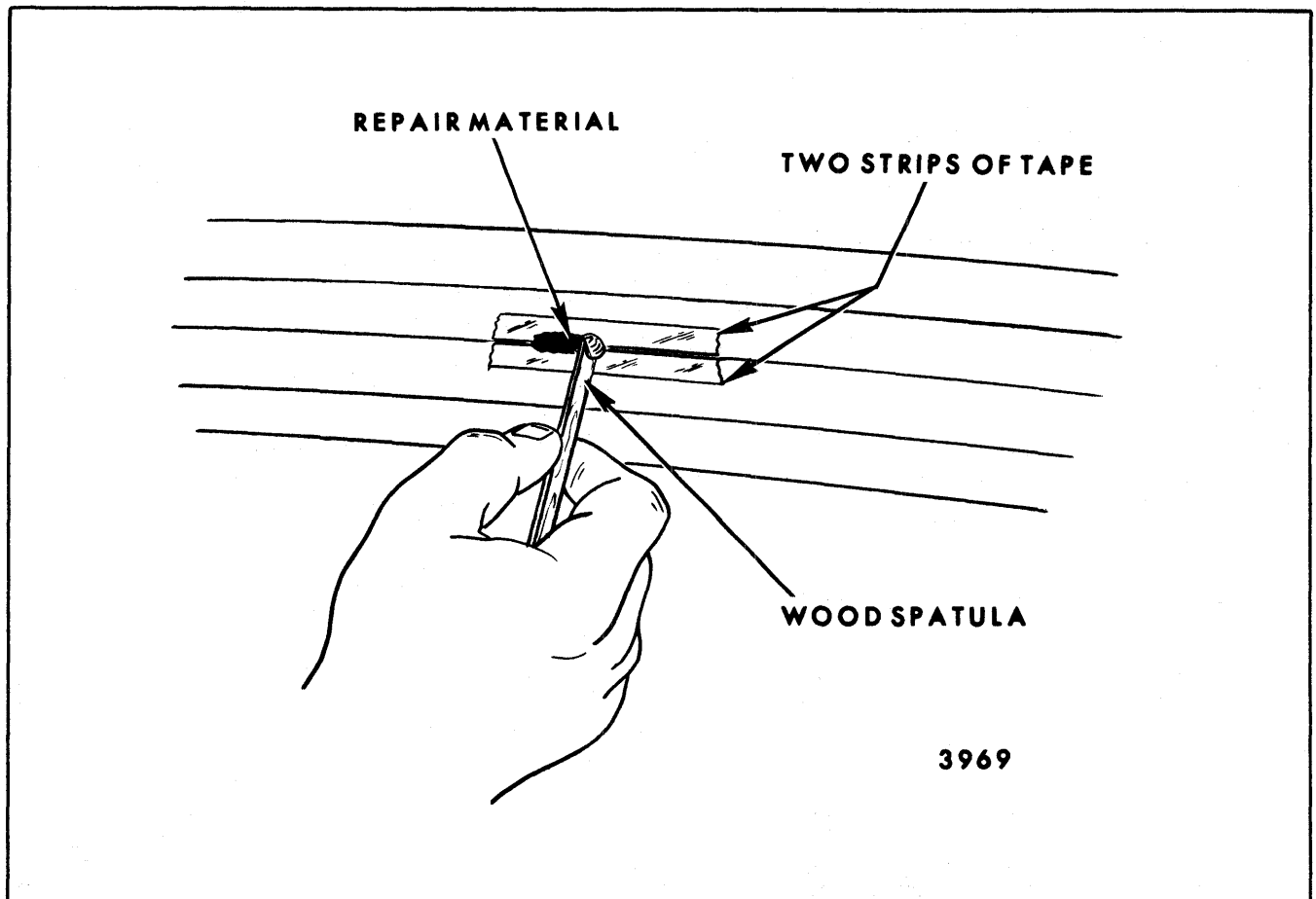


Fig. 10-28-Applying Repair Material to Broken Grid

3. Use the decal supplied in the kit or apply two strips of electrician's plastic tape above and below the damaged grid line in order to control the width of repair material. Proper tape positioning may be checked from outside the vehicle.

NOTE: If the decal is used, be sure that the die-cut metering slot is the same width as the grid line to be repaired. If the slot is too narrow or too wide, use tape as described in step 3.

4. Lay the plastic rectangular shaped mixing plate on a flat surface and dispense the silver color material in a circular ring on the mixing plate by pushing syringe plunger to the bottom.
5. Dispense dark hardener in the center of the circle by pushing dispenser plunger to the bottom.

NOTE: If hardener has crystallized, heat container at 108 degrees F. until hardener is liquified.

6. Mix the dark hardener into the silver plastic by blending the material with the mixing stick.

7. With the glass at room temperature, apply the repair material with the small wooden mixing spatula, slightly overlapping the existing grid line either side of the break (Fig. 10-28).

8. Carefully remove the decal or tape.

9. Apply a constant stream of hot air directly to the repaired area with a heat gun (preferably 500 degrees F. to 700 degrees F. range) for 1 to 2 minutes. Heat gun nozzle should be held approximately 1 inch from repair (minimum of 300 degrees F. is essential for establishing conductivity) see Figure 10-29.

CAUTION: In order for the repaired area to reach the desired level of electrical conductivity, the repair material must be cured with heat. When working close to interior trim, it may be necessary to protect the trim that is immediately adjacent to the stream of heat.

NOTE: If back window electric grid defogger grid line appears off-color after performing the repair, use a fine brush or pipe cleaner and apply

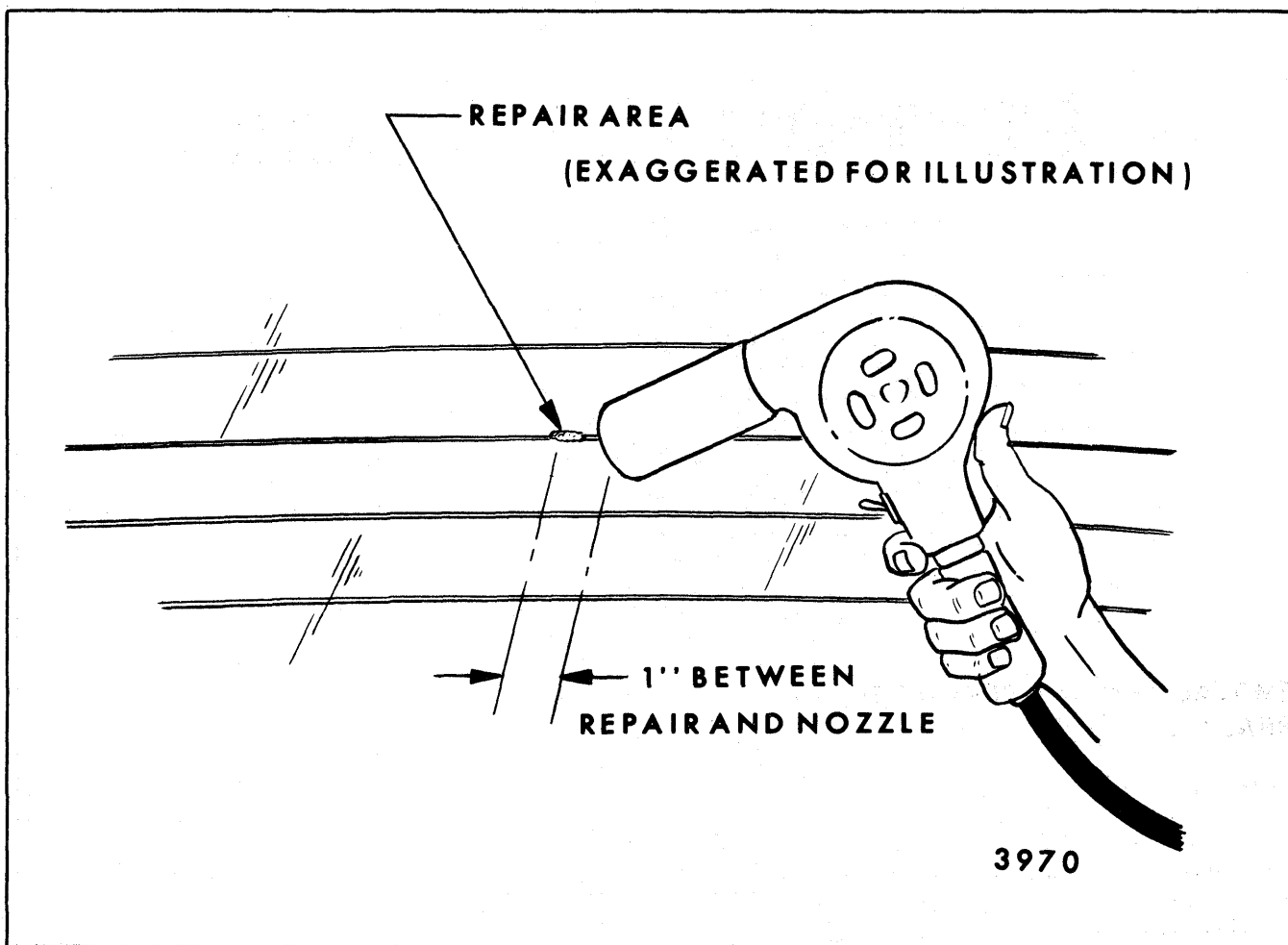


Fig. 10-29-Applying Heat to Grid Line Repair

a coat of tincture of iodine on approximately one inch on either side of the repaired area. Allow iodine to dry for about thirty (30) seconds and carefully wipe off excess with lint free cloth.

10. Retest grid lines to insure proper operation.

NOTE: Although grid defogger is operational, additional air dry time is required to effect a complete cure, therefore, the area of repair must not be physically disturbed for 24 hours.

BRAIDED LEAD WIRE REPAIR

Repair of bus bar braided lead wire may be accomplished by resoldering with 3 per cent silver solder and rosin flux paste in the following manner:

1. Lightly buff the bus bar in the area to be repaired with fine steel wool to remove oxide coating formed during glass firing.
 2. Brush a small amount of flux paste on bus bar.
 3. Coat the tip of a small soldering iron with 3 per cent silver solder and draw across the bus bar depositing a thin coating of solder.
- NOTE:** Only enough heat to melt solder (to start flowing) is recommended. Contact bus bar for as short a time as possible.
4. Repeat the procedure for the braided lead.
 5. Position the braided lead on the bus bar and apply heat to complete soldering operation.

SECTION 11

STATIONARY GLASS

INDEX

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Stationary Glass	11-4
Bonded Rear View Mirror Support	11-10

GLASS POLISHING**REMOVAL OF MINOR SCRATCHES AND ABRASIONS****Description**

Minor glass scratches and abrasions can be effectively removed or substantially reduced by utilizing the procedure and precautions presented in this section. The phases of glass polishing discussed in this section include equipment required, recommended procedure and necessary precautions.

There are two basic types of automotive glass: (1) laminated safety plate (all windshield glass) and (2) solid tempered safety plate (all side windows and back glass).

A major concern in glass polishing is preventing double vision from developing in areas that will distort occupant vision. For this reason, less polishing can be done on the windshield in occupant's line of vision than in other areas. Distortion is most likely to occur when attempting to remove deep scratches.

Glass polishing is an operation that must be performed with reasonable care.

CAUTION: *This operation must not be performed on inside surface of rear window glass equipped with rear window electric grid defogger (heating elements in glass).*

The equipment and procedures recommended here were developed using cerium oxide compound (Glass-Nu or equivalent). Follow manufacturer's directions if other materials are used.

The following equipment is recommended for glass polishing:

1. A low speed (600-1300 RPM) rotary polisher (Skil Model No. 570 or equivalent).
2. A wool felt rotary-type polishing pad, approximately three inches in diameter and two inches thick.
3. Powdered cerium oxide (Glass-Nu or equivalent) mixed with water as the abrasive compound.
4. A wide mouth container to hold the polish.

Glass Polishing Procedure

1. Mix at least three heaping tablespoons of cerium oxide (Glass-Nu or equivalent) with sufficient water to obtain a creamy consistency.

NOTE: If a larger proportion of cerium oxide (Glass-Nu or equivalent) is used, compound cakes on the felt pad faster. If a smaller proportion is used, polishing time required will increase.

2. Agitate mixture occasionally to maintain a creamy consistency. Powdered cerium oxide is insoluble in water and tends to separate.
3. Draw circle around scratches on opposite side of glass with marking crayon or equivalent. Draw other lines directly behind scratches to serve as

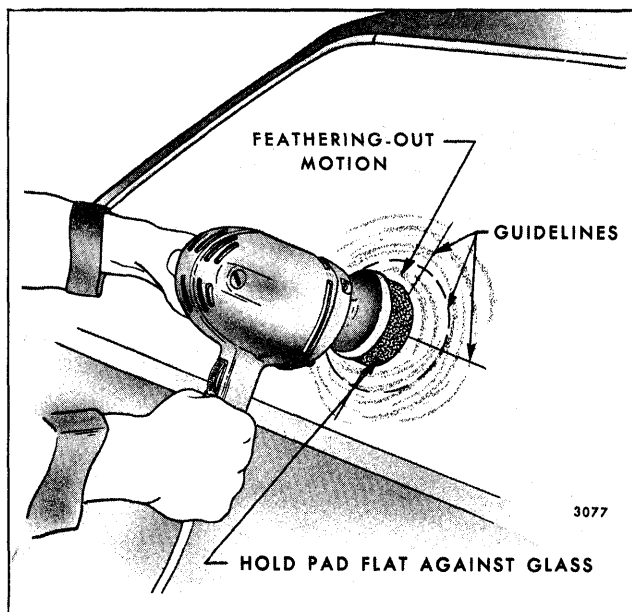


Fig. 11-1-Minor Glass Scratch Removal

guides in locating scratch during polishing (Fig. 11-1).

4. Use masking paper where needed to catch drippings or spattered polish.
5. Dip felt pad attached to polisher into mixture several times to ensure that pad is well saturated.

NOTE: Never submerge or allow pad to stay in

mixture as it may loosen bond between pad and metal plate.

6. Using moderate, but steady, pressure, hold pad flat against scratched area of glass, and with a feathering-out motion, polish affected area as shown in Figure 11-1.

CAUTION: Avoid excessive pressure. It does not speed-up operation and may cause overheating of glass.

7. Cover sufficient area around scratch with a feathering-out motion as shown in Figure 11-1, to eliminate any possibility of a "bull's-eye".

CAUTION: Never hold tool in one spot or operate tool on the glass any longer than 30 to 45 seconds at a time. If glass becomes hot to touch, let it air cool before proceeding further. Cooling with cold water may crack heated glass.

8. Dip pad into mixture about every fifteen seconds to insure that wheel and glass are always wet during polishing operation. A dry pad causes excessive heat to develop.
9. After removing scratch or abrasion, wipe body clean of any polish.
10. Clean polishing pad.

NOTE: Care should be taken during polishing and storage to keep pad free of foreign material such as dirt, metal filings, etc.

REVEAL MOLDINGS - STATIONARY GLASS

REVEAL MOLDINGS - WINDSHIELD AND BACK WINDOW

Description

Reveal moldings around the periphery of the windshield and back window are retained by nylon clips which, in turn, are secured to weld studs or screws located in the rabbet section of the opening(s). The moldings are snapped over a "thumbnail" projection on the clip and retain to the return flange of the molding (Fig. 11-2).

Windshield Molding Removal

In order to remove the reveal moldings from the windshield area, it is necessary to utilize tool J-

21549-10 and J-21549-11 (left and right side operation) or equivalent. These tools are designed to roll the retaining feature of the clip from the return flange of the molding.

1. Insert the point of the tool between the glass and the molding, engaging behind the clip retaining feature.
2. Rock the tool slightly to permit easier disengagement (Fig. 11-3).
3. Remove lower windshield reveal molding by removing attaching screws (Fig. 11-4).

Back Window Molding Removal

The moldings around the back window are beneath

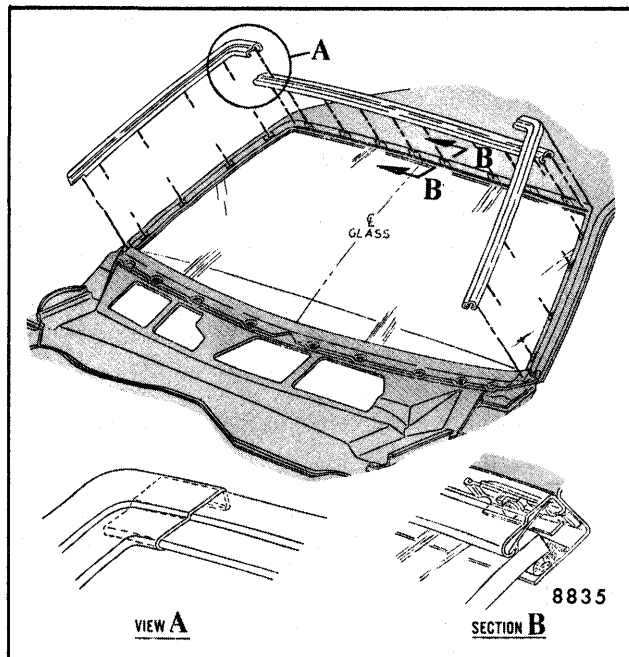


Fig. 11-2-Windshield Reveal Moldings

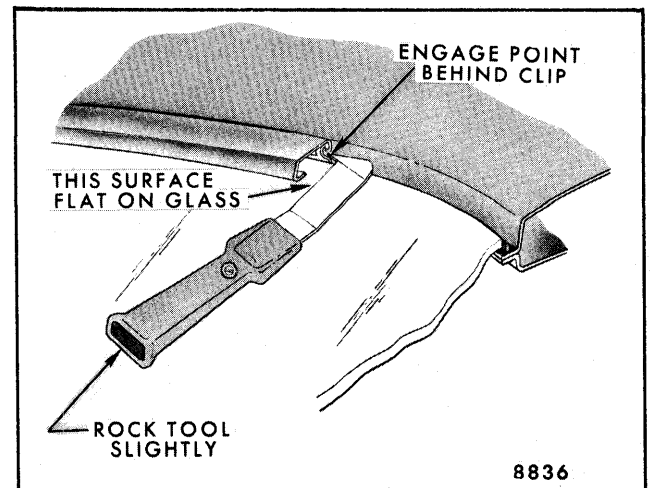


Fig. 11-3-Reveal Molding Tool

the vinyl top material. These moldings provide securement of the vinyl material in the glass opening (Fig. 11-5).

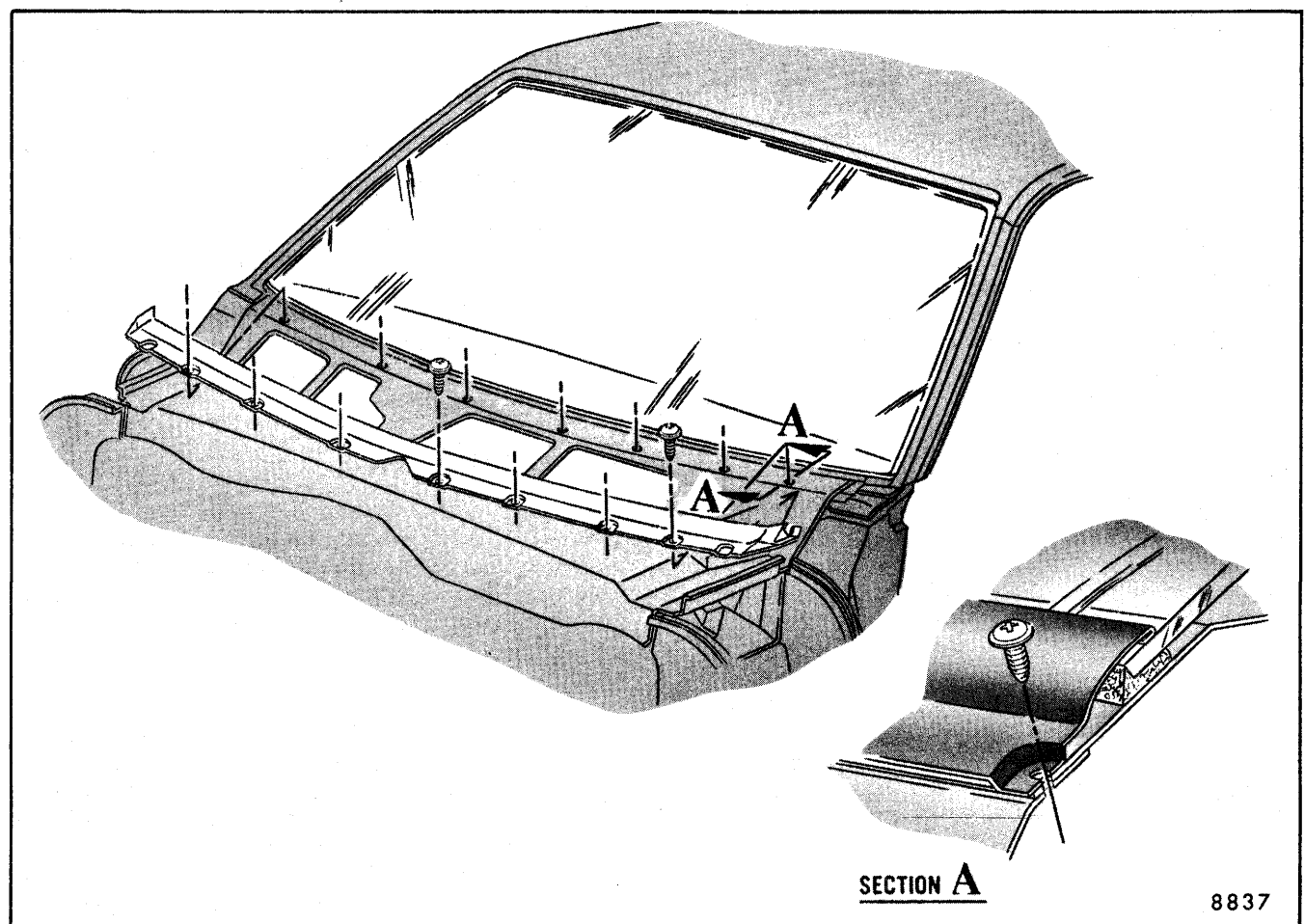


Fig. 11-4-Windshield Lower Molding

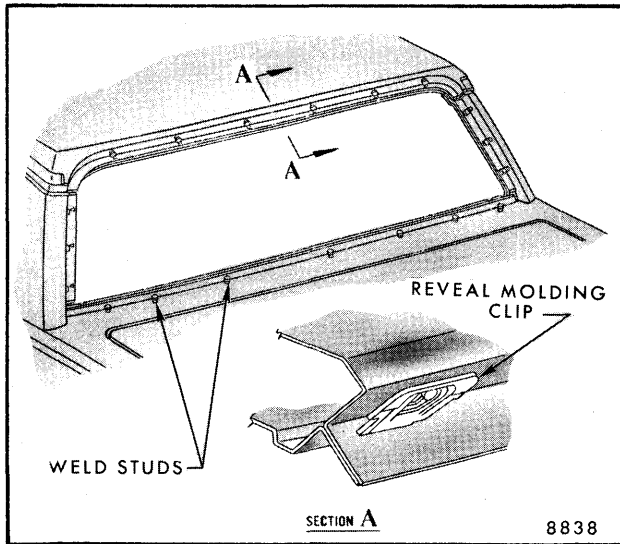


Fig. 11-5-Back Window Reveal Moldings

In addition, a finishing reveal molding is positioned around the complete opening. Refer to the Roof (Vinyl Top) Section of this manual for removal procedure of the finishing reveal moldings.

Once the finishing reveal is removed, the back window moldings can be removed using the same procedure as described for the windshield.

Installation

The moldings must be installed in reverse of removal sequence. Once molding(s) are positioned, apply pressure at the attaching clip location until the re-

taining feature of the clip engages the return flange of the molding.

General Precautions

1. A thin flat-bladed tool (putty knife) can be inserted between the glass and the molding(s) to locate and provide access to the attaching clips for disengagement with recommended tools.
2. Painted surfaces adjacent to moldings should be protected with masking tape to prevent damage to finish.
3. Use proper tools to prevent damage to the moldings.
4. Where moldings overlap (at corners), the top molding must be partially disengaged or removed first.
5. Extra caution must be applied at the back window area to prevent damage to the vinyl top material.

Clip or Stud Replacement

In the event that a weld stud becomes damaged or broken, replacement can be made as follows:

1. Drill a small hole adjacent to the broken stud in the rabbet section of the opening.
2. Drive a self-sealing screw through the slot in the clip (new or salvaged) and into drilled hole.

CAUTION: *Avoid contact with edge of glass during the above operation.*

STATIONARY GLASS

DESCRIPTION

The windshield and back window are bonded to body opening with synthetic, self-curing Urethane Adhesive.

Replacement of glass installed with urethane material requires either partial or complete replacement of adhesive material. Partial replacement of material is referred to as "short method". Complete material replacement is known as "extended method".

The "short method" can be used in those situations where original adhesive material remaining on glass opening pinchweld flanges after glass removal can serve as a base for the new glass. This method would

be applicable in cases of cracked windshields or removal of glass which is still intact. In these situations, the amount of adhesive that is left in glass openings can be controlled during glass removal.

The "extended method" is required when the original adhesive material remaining in the opening after glass removal cannot serve as a base for replacement glass. Examples of this latter situation would be in cases requiring metal work or paint refinishing in the opening, or where there is a considerable loss of adhesion between original adhesive material and body metal. In these cases, original material is removed and replaced with fresh material during glass installation.

ADHESIVE SERVICE KIT

Adhesive Kit No. 9631000 (Urethane Adhesive) or equivalent contains some of the materials needed to remove and replace a urethane adhesive installed glass using the short or extended method. This kit can be obtained through Service Parts System as well as other materials that may be required.

The components of glass adhesive kit (Urethane) No. 9631000 or equivalent are as follows:

1. One tube of urethane adhesive material.
2. One dispensing nozzle (cut for "short method" but can be notched-out for "extended method").
3. Steel music wire (.020 diameter).
4. Primer.
5. Primer applicator.

Additional material required:

1. Solvent for cleaning edge of glass (preferably alcohol).
2. Adhesive dispensing gun No. J-24811 or equivalent or a standard household cartridge type gun reworked as follows:
 - a. Widen end-slot to accept dispensing end of adhesive material tube.
 - b. Reduce diameter of plunger disc on rod so that disc can enter large end of adhesive material tube.
3. Commercial grade razor knife (for cutting around edge of glass).
4. Hot knife (750 degree F.) No. J-24709-1 or equivalent, cold knife No. J-24402 or equivalent or two pieces of wood for wire handles.

NOTE: Recent improvements in hot knife No. J-24709 or equivalent, reduce the effort required to cut out a urethane installation. These improvements are a new pull handle, tool J-24709-5 or equivalent and new blade J-24709-6 or equivalent. These changes are incorporated in hot knife No. J-24709-1 or equivalent.

5. Black weatherstrip adhesive.
6. Two side support spacers.
7. Lower support spacers - for "short and extended method" installations.

NOTE: When glass is originally installed, a rubber sealing strip "dam" is applied around edges of the glass to prevent excessive squeeze-out of adhesive material. Service installations do not utilize this part. By applying masking tape around inner perimeter of glass prior to installation, excess squeeze-out material is picked up and removed with tape.

WINDOW REMOVAL

The window removal procedure is the same for both the "short" and "extended" installation methods with one exception. If the "short method" installation is to be used, more care must be used during removal to make certain that an even, uniform bead of adhesive material remains on glass opening to serve as a base for replacement glass. Also, make certain that glass lower support spacers are not disturbed.

1. Place protective coverings around area where glass is being removed.
2. Remove all trim and hardware immediately adjacent to glass being removed. Depending on the glass involved, this could involve the reveal moldings, garnish moldings, finishing reveal moldings, front cowl panel, and windshield wiper arms.
3. On styles equipped with optional rear window electric grid defogger (heating elements in glass), disconnect wire harness connectors from glass. If glass is to be reinstalled, tape leads to inside surface of glass to protect them during handling.

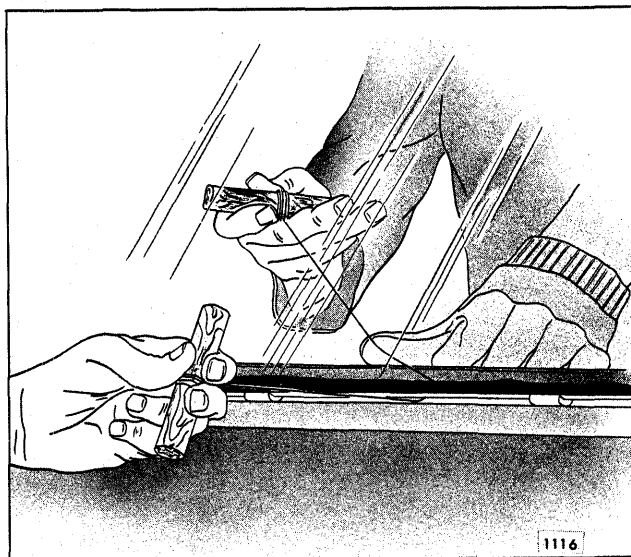


Fig. 11-6-Cutting Adhesive Material

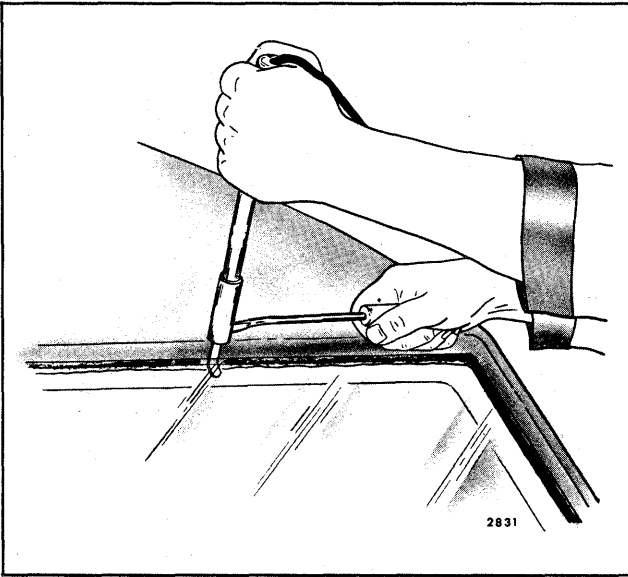


Fig. 11-7-Electric Hot-Knife Removal Method

4. Using edge of glass as a guide, cut adhesive material padded on side edge of glass with a commercial grade razor knife. Cut material completely around perimeter of glass.
5. To complete removal of original urethane installation, use of 750 degree F. hot knife No. J-24709-1 or equivalent or cold knife No. J-24402 or equivalent is recommended (Fig. 11-7).
6. If music wire is used to cut adhesive material, secure one end of wire to a piece of wood that can serve as a handle. Using long nose pliers, insert other end of wire through adhesive material at edge of glass; then, secure that end of wire to another wood handle (Fig. 11-6).

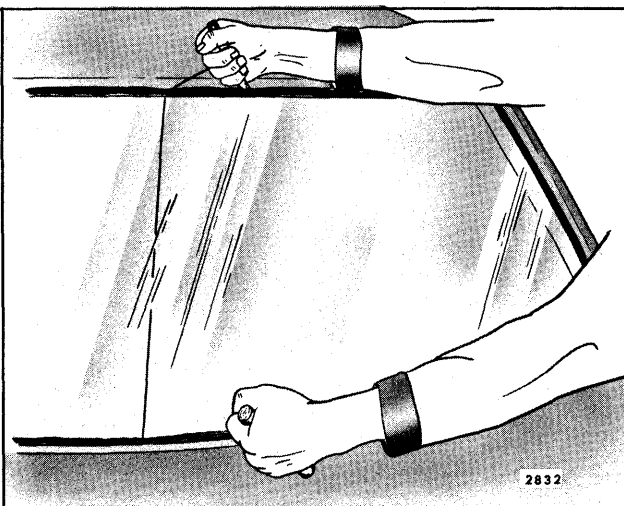


Fig. 11-8-One Man Wire Removal Method

7. With aid of helper, carefully cut (pull wire) through adhesive material around entire perimeter of window. If "short method" will be used to install new glass, hold wire or cutting tool close to inside plane of glass to prevent cutting an excessive amount of adhesive material from window opening. Keep tension on wire throughout cutting operation to prevent wire from kinking and breaking (Fig. 11-6).

NOTE: Glass removal with wire can be performed by one man. To do so, insert one end of wire through adhesive material at inner upper edge of glass and other end of wire through adhesive material at inner lower edge. Attach handles to both wire ends outside of body (Fig. 11-8).

8. If original glass is to be reinstalled, place it on a protected bench or holding fixture; remove old material using a razor blade or sharp scraper. Any remaining traces of adhesive material can be removed with denatured alcohol or lacquer thinner dampened cloth.

CAUTION: When cleaning windshield glass, avoid contacting edge of plastic laminate material (on edge of glass) with volatile cleaner. Contact may cause discoloration and deterioration of plastic laminate by "wicking" action. **DO NOT** use a petroleum base solvent such as kerosene or gasoline. The presence of oil will prevent adhesion of new material.

Installation - "Short" Method

NOTE: "Short" method installation is intended for original urethane installation only.

1. Inspect reveal molding retaining clips. Replace any clips which are distorted and do not retain as required.
2. Properly position windshield lower supports or spacers (back window) Part No. 7694478 (.34 x .44 x .75) or equivalent as indicated in Figure 11-11 ("A" location) and position glass in opening. If new glass is being installed, check relationship of glass to adhesive material on pinchweld flange. Gaps in excess of 1/8" must be corrected by shimming or by applying more adhesive material than specified in step 7.
3. With glass in proper position in opening, apply piece of masking tape over each side edge of glass and adjacent body pillar. Slit tape vertically at edge of glass. During installation, tape on glass can be aligned with tape on body to guide window into desired position.

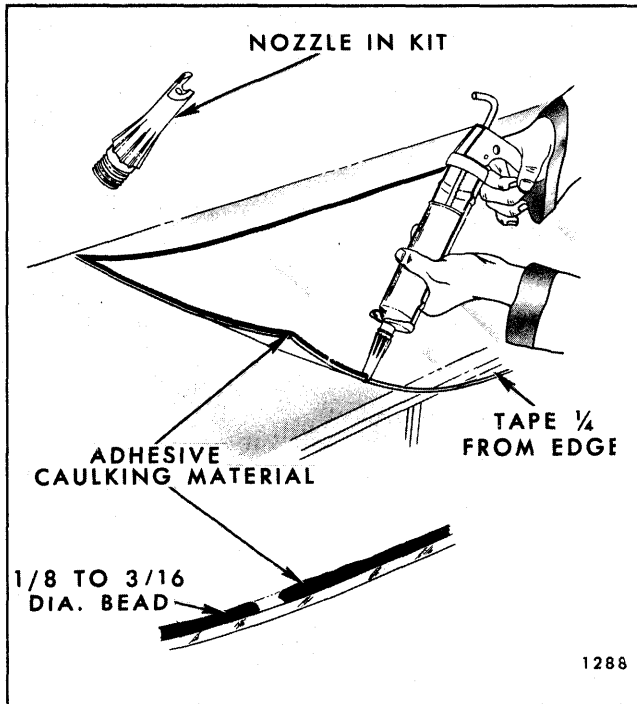


Fig. 11-9-Adhesive Material Application - Short Method

4. Remove glass from opening. If desired, apply 1" wide masking tape to inside of glass 1/4" inboard from edge of glass, across top and down each side, to facilitate clean-up after installation. Do not use masking tape along bottom edge of windshield glass.

5. Thoroughly clean surface of glass to which adhesive material will be applied (around edge of inside surface) by wiping with a clean, alcohol dampened cloth. Allow to air dry.

6. Apply primer provided in Urethane Adhesive Kit No. 9631000 or equivalent as follows:

NOTE: Primer must be thoroughly agitated prior to application to glass.

Apply primer around entire perimeter of glass edge and 1/4" inboard on inner surface. Allow primer to dry 5 minutes.

7. Apply smooth continuous bead of adhesive material over entire inside edge of glass where primed in step 6. Material should be 1/8" to 3/16" in diameter (Fig. 11-9).

8. With aid of helper, lift glass into window opening. On back window installations it will be necessary to use suction cups to position glass in opening. Windshield glass can be positioned without aid of carrying devices. As shown in Figure 11-10, carry glass with one hand on in-

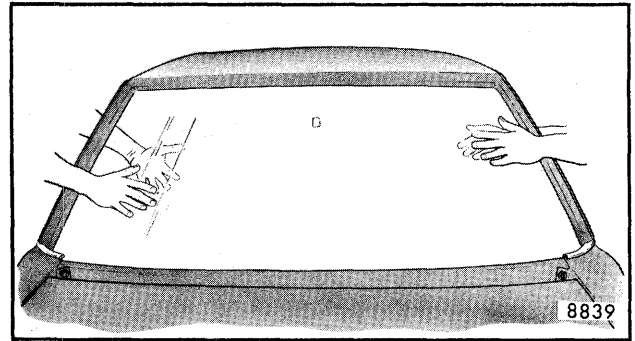


Fig. 11-10-Glass Installation

side of glass and one hand on outside. At glass opening, place glass in horizontal position. While one man holds glass in this position, second man can reach one arm around body pillar and support glass while other man assumes same position.

9. With glass centered at opening, place glass on lower supports and use tape guides applied in step 3 to carefully place glass in proper position.
10. Press glass firmly to "wet-out" and "set" adhesive material. Use care to avoid excessive squeeze-out which would cause an appearance problem. Using small disposable brush or flat-bladed tool, paddle material around edge of glass to ensure watertight seal. If necessary, paddle additional material to fill voids in seal.
11. Watertest car immediately using soft spray of warm or hot water. Do not direct hard stream of water at fresh adhesive material. If any leaks are encountered, paddle-in extra adhesive material at leak point using a small disposable brush or flat-bladed tool.
12. Cement a rubber spacer between both right and left side of glass and body metal to assure that glass will remain centered in opening while adhesive material is curing (Fig. 11-11, item "C").
13. Install reveal moldings and remove clean-up masking tape from inner surface of glass and install remaining parts.
14. On windshield installations, vehicle must remain at normal room temperature (72 degrees F.) for six hours to complete proper cure of adhesive material.

Installation - "Extended" Method

If material remaining in opening after glass removal is damaged, or must be removed to permit refinishing of opening, or has insufficient adhesion to body

metal to serve as a base for replacement glass, it will be necessary to use "extended" installation method.

1. Using sharp scraper or chisel, remove major portion of old adhesive material from flanges around entire opening. On urethane installations, it is not necessary that all traces of material be removed, but there should not be any mounds or loose pieces left.

NOTE: If refinishing or painting operations are required, or painted surface is exposed during removal of material, kit primer should be applied as indicated in step 13b.

2. Inspect reveal molding attaching clips. If retaining feature of clip is distorted away from body metal, replace clip.
3. Using black weatherstrip adhesive or adhesive material, cement flat rubber spacers No. 4459429 or equivalent to window opening pinchweld flanges. As shown in Figure 11-11, location "B", spacers should be positioned to provide equal support around entire perimeter of glass.

CAUTION: If weatherstrip adhesive is used, apply sufficient material to obtain watertight seal beneath spacer, however, do not allow excessive squeeze-out. Weatherstrip adhesive is not compatible with replacement adhesive material and waterleaks may develop at locations where these two materials are used together to form seal.

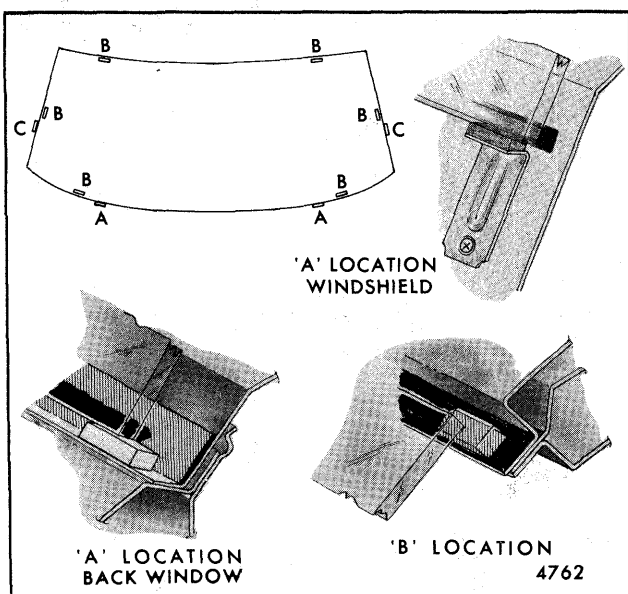


Fig. 11-11-Glass Spacer Installation

4. Figure 11-11, location "A", illustrates rectangular spacers positioned in typical back window installation. Reinstall metal supports at lower edge of windshield glass (in lieu of two lower "A" spacers indicated in back window installation).
5. With aid of helper, lift glass into window opening. On back window installations it will be necessary to use suction cups to position glass in opening. The windshield glass can be positioned without aid of carrying devices as described in step 6 (Fig. 11-10).
6. With one hand on each side of glass, put window in vertical position and support it on lower glass support spacers. While one man holds glass in this position, second man can reach one arm around body pillar and support glass while other man assumes the same position.
7. With glass positioned in opening, check relationship of glass to pinchweld flange around entire perimeter. Overlap of pinchweld flange should be equal with minimum overlap of 3/16". Overlap across top of windshield may be corrected by repositioning lower metal support spacers. Overlap across top of back window may be varied by shimming or shaving lower glass support spacers.

The following spacers are available as service parts.

- a. Part No. 4459429 or equivalent (.20 x .63 x 1.0) stand off spacers for maintaining glass 3/16" from body opening - see location "B", Figure 11-11.
 - b. Part No. 7694478 or equivalent (.34 x .44 x .75) lower and side support spacers - see locations "A" and "C", Figure 11-11.
 - c. Part No. 9848544 or equivalent (.52 x .44 x .75) lower and side support spacers - see locations "A" and "C", Figure 11-11.
 - d. Part No. 9613680 or equivalent (.36 x .44 x 1.0) lower and side support spacers - see locations "A" and "C", Figure 11-11.
8. Check relationship of glass contour to body opening. Gap space between glass and pinchweld flange should be no less than 1/8" nor more than 1/4". If difficulty is encountered staying between these limits, correction can be made by any one of the following methods:

- a. Reposition flat spacers.

- b. Apply more caulking material than is specified at excessive gap areas. Material can be applied to pinchweld flange or by allowing bead on glass to exceed $3/8"$ height at gap areas.
 - c. Change glasses - another glass may fit opening better.
 - d. Rework pinchweld flange.
9. After final adjustments have been made and glass is in proper position, apply pieces of masking tape over edges of glass and body, slit tape at edge of glass. Tape on glass can be aligned with tape on body to guide glass into opening during installation. Remove glass from opening for adhesive application.
 10. If desired, apply one-inch masking tape around inner surface of glass $1/4"$ inboard from outer edge. On windshield installations, apply tape to top and sides only. Do not use tape across bottom. Removal of tape after glass installation will aid in clean-up and give a smooth, even edge to adhesive material (Fig. 11-12).
 11. Nozzle furnished in kit is designed for "short" method. For "extended" method, enlarge nozzle by removing material within score lines as indicated in Figure 11-12. Do not notch nozzle beyond score lines.
 12. Thoroughly clean surface of glass to which bead of adhesive material will be applied (around edge of inside surface of glass) by wiping with a clean, alcohol dampened cloth. Allow to air dry.
 13. Apply primer provided in Urethane Adhesive Kit No. 9631000 or equivalent as follows:

NOTE: Primer must be thoroughly agitated prior to application.

- a. Apply primer to entire perimeter of glass edge and $1/4"$ inboard on inner surface. Allow primer to dry for 5 minutes.
 - b. Apply primer to any portion of glass opening that required refinishing and painting operations, or any portion that was cleaned of former adhesive sufficiently to expose the painted surface. Allow primer to dry for 5 minutes.
14. With caulking gun and nozzle positioned as illustrated in Figure 11-12, carefully apply smooth continuous bead of adhesive material $3/8"$ high by $3/16"$ wide at base completely around inside edge of glass.

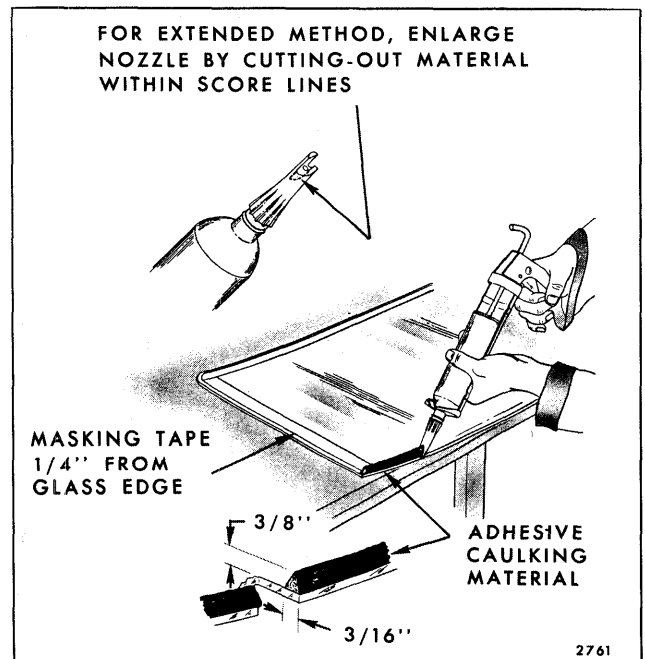


Fig. 11-12-Adhesive Material Application - Extended Method

15. With glass centered at opening, place glass on lower supports and use tape guides applied in step 9, to carefully place glass in proper position. On windshield installation, guide lower outer surface of glass along rear edge of front fenders to avoid smearing fresh adhesive material on instrument panel (Fig. 11-10). Make certain glass is properly aligned to tape guides on pillars, and positioned on lower metal supports. Apply light hand pressure to "wet-out" adhesive material and obtain bond to body opening. Using small disposable brush or flat-bladed tool, paddle material around edge of glass to ensure watertight seal. If necessary, paddle additional material to fill voids in seal.
16. Watertest immediately using soft spray of warm or hot water. Do not direct stream of water at fresh adhesive material. Allow water to spill over edges of glass. If waterleak is encountered, use flat-bladed tool to work-in additional adhesive material at leak point.
17. Cement a rubber spacer between both right and left side of glass and body metal to assure that glass will remain centered in opening while adhesive material is curing (Fig. 11-11, item "C").
18. Install window reveal moldings. Then, if tape was used, carefully remove from around inner periphery of window. Pull tape toward center of glass to give a clean-cut edge to adhesive material, and to prevent excess squeeze-out material on tape from creating an additional clean-up problem.

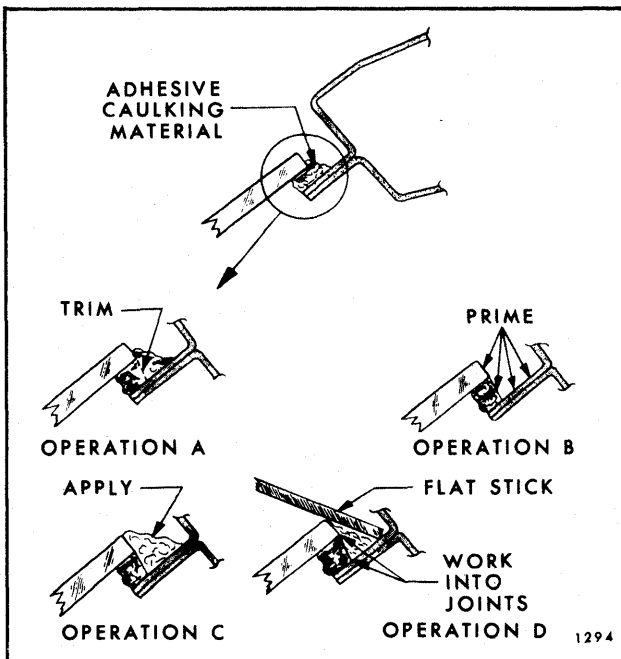


Fig. 11-13-Adhesive Glass Waterleak Correction

19. Install all other previously removed parts and clean up.
20. On windshield installations, vehicle must remain at normal room temperature (72 degrees F.) for six hours to complete proper cure of adhesive material.

WATERLEAK CORRECTION

Description

Urethane adhesive glass installation waterleaks can be corrected without removing and reinstalling glass.

Procedure

NOTE: The following procedure is applicable only

with use of adhesive material furnished in Kit No. 9631000 or equivalent.

1. Remove reveal moldings in area of leak. In some cases, it may become necessary to remove garnish moldings or finishing lace to locate source of leak.

2. Mark location of leak(s).

NOTE: Carefully push outward on glass in area of leak to determine extent of leak. This operation should be performed while water is being applied to leak area. Mark extent of leak area.

3. From outside body, clean any dirt or foreign material from leak area with water; then dry area with air hose.
4. Using a sharp knife, trim off uneven edge of adhesive material (see operation "A", Fig. 11-13) at leak point and 3 to 4 inches on both sides of leak point or beyond limits of leak area.
5. Prime affected area, as shown in operation "B", Figure 11-13, with primer supplied in kit. Thoroughly agitate primer prior to use. Allow primer to dry 5 minutes.
6. Apply adhesive material, as shown in operation "C", Figure 11-13, at leak point and 3 to 4 inches on both sides of leak point or beyond limits of leak area.
7. Immediately after performing step 6, use flat stick or other suitable flat-bladed tool to work adhesive material well into leak point and into joint of original material and body to effect watertight seal along entire length of material application (see operation "D", Fig. 11-13).
8. Using warm or hot water, spray test to assure that leak has been corrected. **DO NOT** run heavy stream of water directly on freshly applied adhesive material.

BONDED REAR VIEW MIRROR SUPPORT

DESCRIPTION

The rear view mirror is attached to a support which is secured to the windshield glass. This support is installed by the glass supplier using a plastic-polyvinyl butyral adhesive.

Service replacement windshield glass incorporates the mirror support as part of the assembly. In the

event that the support becomes detached from the glass, installation can be accomplished using Loctite Minute-Bond Adhesive 312, Catalog No. 33-33, available through Loctite distributors, or an equivalent.

To install a detached mirror support or install a new part, the following materials are recommended:

1. Loctite Minute-Bond Adhesive 312 two component pack, Catalog No. 33-33, or equivalent.
2. Replacement rear view mirror support, Service Part No. 9831062 (or equivalent), or original mirror support, prepared per steps 3 and 4 of installation procedure.
3. Wax marking pencil, or crayon.
4. Rubbing alcohol.
5. Clean paper towels.
6. Fine grit emery cloth or sand paper (No. 320 or No. 360).
7. Clean toothpick.

Installation - Rear View Mirror Support

The support location is at the centerline of glass, measured from either lower corner. This dimension is 29-3/32 inches. The height is measured from the bottom edge of the glass at centerline to the bottom surface of the support. This dimension is 18-29/32 inches (see Fig. 11-14).

1. When location is determined, mark location on outside of glass with wax pencil or crayon.
2. On inside glass surface, clean area with paper towel and domestic scouring cleanser, glass cleaning solution or polishing compound. Rub until area is completely clean and dry. When dry, thoroughly clean area with an alcohol saturated paper towel to remove any traces of scouring powder or cleaning solution from this area.
3. With piece of fine grit (No. 320 or No. 360) emery cloth or sandpaper, completely sand bonding surface of rear view mirror support, Part No. 9831062 (or equivalent).

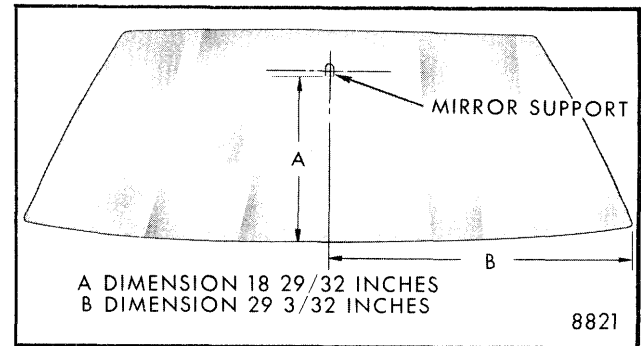


Fig. 11-14-Locating Bonded Rear View Mirror Support on Glass

CAUTION: If original rear view mirror support is being reinstalled, ALL traces of factory installed vinyl patch must be removed prior to reinstallation.

4. Wipe sanded mirror support with clean paper towel saturated with alcohol, and allow to dry.
 5. With spray can of accelerator material provided in Loctite Kit (or equivalent), lightly spray Minute-Bond accelerator or equivalent to bonding surface of mirror support and windshield glass. Allow to dry completely.
- NOTE:** Due to rapid bond of adhesive the following steps must be performed without hesitation.
6. When both bonding surfaces have dried, apply two drops of adhesive to mirror support, and with toothpick quickly distribute adhesive evenly over entire bonding surface of mirror support.
 7. Properly position support to its pre-marked location, with rounded end pointed upward; press support against glass for 30 to 60 seconds, exerting steady pressure against glass. After five minutes, any excess adhesive may be removed with an alcohol moistened paper towel or glass cleaning solution.